PALESTINE

Annual Report

of the

Department of Agriculture and Forests

for the year ending March 1934

by

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Director of Agriculture and Forests.

JERUSALEM

PRICE : 100 MILS.

ANNUAL REPORT

of the

DEPARTMENT OF AGRICULTURE AND FORESTS

Year ending 31st March 1934.

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ANNUAL REPORT

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DEPARTMENT OF AGRICULTURE AND FORESTS

For the Year

Ending March 31st 1934.

I. GENERAL

CLIMATE AND CONDITION OF CROPS AND LIVESTOCK, ETC.

The rainfall in 1933-34 was below normal, and in the South particularly, large areas had to be resown and seed had to be imported for sowing. There was also a shortage of forage necessitating imports of tibn and berseem hay from Egypt. Many springs and cisterns dried up early in the summer, and pasture was scanty and scarce. In consequence, special relief measures had to be taken by Government involving the issue of loans, mostly in kind, to the extent of £P.76,000, remission of tithes to the amount of £P.193,000 and the remission of animal taxes in the sum of £P.21,000. Crop production amounted to, in almost all cases, less than half the normal yields.

Not only was production low, but in March there was an outbreak of Ed Dūdeh (*Scythris temperatella*) which did considerable damage to certain areas of late sown crops. Badly affected areas had to be fed off or ploughed up for summer sowings. Farmers were advised to change their rotation to avoid a recurrence of this pest.

Field mice, where they occurred in the North, were happily destroyed quickly, before the plague could spread. The winter cereals, however, were damaged by red rust.

To encourage farmers to eliminate weeds and impurities from their grain and to grade their seed, the Department carried out demonstrations in the cleaning and grading of grain with portable grain cleaners. Two hundred tons of seed were thus cleaned and graded on behalf of 180 different farmers in 21 villages. It is particularly the weeds Tarradan (*Cephalaria syriaca*) and Ziwan (*Lolium emulentum*) which it is necessary to eliminate from grain.

The growing of maize for silage was encouraged and experiments were undertaken to improve natural pastures and new field grasses were introduced from Australia.

There was considerable activity in the sinking of new wells in the coastal plain for fruits and vegetables, and a continued expansion in the area devoted to citrus cultivation.

COORDINATION OF RESEARCH.

To co-ordinate agricultural research activities, and obviate duplication of work, the Department co-operated with the Jewish Agency in their various research activities, and the Station at Rehovoth was assisted by Government to the extent of £P.3,000 for Citrus Research. A Citrus Advisory Research Committee was set up to co-ordinate work at the Research Station at Rehovoth with that at the Government Citrus Demonstration Station at Sarafand.

In addition, a grant of £P. 300 was made to the Rehovot Station for intensive farming experiments, and a further grant of £P. 300 to maintain the hillside Fruit Station at Kiryath Anavim.

FOREST POLICY.

It was clear to me, soon after my arrival in Palestine, that is was necessary to embark on a more extensive programme of afforestation. At my request Mr. F. J. Tear drew up a very full and valuable memorandum setting out the history of the Forest Service since its inception in 1920. I am glad to record that in consequence of representations then made, arrangements have already been made for two officers to be trained in Forestry at Oxford with the view, on their return, of assuming duty in Palestine as Assistant Conservators of Forests, and that it is intended to embark on an extended programme of conservation and afforestation next year. It is clear that it is just as necessary to conserve what already exists as to plant anew.

Imports of timber and forest products continue to increase and have gone up in value from £P.148,000 in 1922 to £P.598,000 in 1933-34. It will take about two generations until Palestine will be able to produce a fair proportion of the timber required for the export, ultimately, of over 30,000,000 boxes of citrus fruit from the citrus zone. This figure is not astronomical for the estimated production ten years hence from the area already planted to citrus is 20,000,000 boxes. The longer afforestation is delayed, the longer the production of timber is postponed, and the greater the damage which will be done, year, after year by soil erosion.

The absence of trees in Palestine is most conspicuous to the visitor making his first entry into the country. Various measures to increase forest growth are outlined in the Chief Forest Officer's Report attached hereto.

SERICULTURE.

Continued progress was made in Sericulture, particularly in schools. The cocoons produced were sent to the filature in Cyprus for reeling. The report received from the filature was most encouraging, indicating that the cocoons were of very good quality, from which silk of attractive appearance could be reeled.

The policy in Sericulture should be to increase the number of mulberry trees under cultivation and encourage the establishment of a filature for the local reeling of the silk. A modern silk factory for weaving already exists.

GENERAL AGRICULTURAL COUNCIL.

The organisation of the General Agricultural Council was considerably improved through the issue of Standing Rules which were approved by His Excellency the High Commissioner after consultation with the members of the Council and Committees.

ENTOMOLOGY.

Almost the entire attention of the Entomological Service had to be devoted to the fumigation of citrus trees against Black and Red Scale. It has now been determined that fumigation for the control of Red Scale is generally preferable to spraying. Red Scale has spread considerably and it is now evident that this pest is as serious a menace as Black Scale, for in 1933-34, rejections of citrus fruit by the Fruit Inspection Service on account of Red Scale represented 50% of the total quantities of fruit unfit for export.

FISHERY POLICY.

It was found necessary to re-institute on the 1st January, 1933, on a very small scale, the Fishery Service which had been abolished on grounds of economy two years earlier.

The small skeleton Fishery Service consisting of two Junior Fishery Officers, although it did good work was compelled, owing to inadequate provision for staff, equipment and investigations, to confine itself almost entirely to the suppression of illegal and injurious fishing practices, the prosecution of offenders, and the collection of fishery statistics. Some 48 cases of dynamiting were detected and in most cases offenders were successfully prosecuted, but the fines inflicted were usually too small to act as deterrents. Two fishermen using dynamite were killed in the process and two others were permanently incapacitated but this does not appear to have deterred others from continuing this illegal practice.

The number of fishing boats used along the coast was 377 and the number of fishermen engaged in fishing 696.

Fish imports in brine, fresh and tinned, amounted to 2,953 tons of a value of £P.98,968 compared with imports in 1932 of 2,275 tons of a value of £P.71,382. The increased imports were due to the increasing demand for fish by the larger population.

Production of fresh fish in Palestine waters was estimated at 1,130 tons of a value (first selling price) of £P.44,733. It is estimated that in addition, 444 tons of a value of £P.8,030 were caught in Lakes Tiberias and Huleh.

Immediately upon my arrival in Palestine I was confronted with the problem as to whether or not a fully equipped Fishery Service should be re-instituted, and resulting from my recommendations, Government invited a Fishery Expert, Mr. J. Hornell, F. L. S., F.R.A.I., to visit Palestine and report on its fisheries. Mr. Hornell has now completed his Survey (November 1934) and has submitted a very comprehensive and valuable document on the Fisheries and Fishery Problems of Palestine. In general, his recommendations are to build up the fishing industry in Palestine, step by step, rather than to embark at the outset on an elaborate and expensive programme.

HORTICULTURE.

New Horticultural Stations were established at Acre and Nablus, and preparations were made for a new Horticultural Station at Farwaneh in the Beisan Sub-District. The Government Citrus Demonstration Station was opened after several years had been devoted to discussion and examination of plans and proposals for this Station. This is part of a scheme for citrus research and demonstration which is being carried out in conjunction with the Jewish Agency Stations at Rehovoth and Ness Ziona which are devoted to research, while the best methods of cultivation, manuring, fertilising and irrigation will be demonstrated at the Government Station at Sarafand.

KADOORIE SCHOOLS.

The Kadoorie Agricultural School, Tulkarm, completed its third year and the first Diploma Day was held on March 12th, 1934, when His Excellency the High Commissioner distributed diplomas to 28 successful students and entertained to lunch over 270 visitors including officials, land-owners, farmers and parents of students.

The Kadoorie Agricultural School at Mount Tabor was nearing completion at the end of the financial year 1933-34. The first batch of students were received on the 1st of June, 1934, and the school was opened officially by the High Commissioner on the 20th of June, 1934, in the presence of a large number of visitors.

II. ADMINISTRATION.

STAFF.

Mr. M. T. Dawe, O. B. E., F. L. S., assumed duty as Director of Agriculture and Forests on transfer from Cyprus on the 16th of April, 1933, in succession to Colonel E.R. Sawer, O.B.E., whose appointment terminated on the 28th October, 1931. Between these dates, Mr. F.J. Tear acted as Director of Agriculture and Forests.

The staff, as at the end of the financial year, (March 31st, 1934) was distributed as follows:—

ADMINISTRATION.

Director	— Mr. M.T. Dawe, O.B.E.,
Deputy Director	— Mr. F.J. Tear.
Assistant Director	— Mr. A.F. Nathan, O.B.E.
Office Superintendent	— Mr. M. Brown, M.B.E.

AGRICULTURE.

Chief Agricultural Officer	— Mr. G.G. Masson.
Agricultural Officer, North	— Mohamed Eff. Ragheb, M.B.E.
„ „ Jaffa	— Mr. S. Antebi.
„ „ Jerusalem	— Jamal Eff. Hammad.

GOVERNMENT STOCK FARM AND AGRICULTURAL STATION.

Manager, Stock Farm and
Agricultural Station, Acre — Mr. B.M. Cameron.

HORTICULTURE AND FRUIT INSPECTION.

Chief Horticultural Officer
and Citrus Fruit Specialist — Mr. A.G. Turner.
Senior Horticultural Officer — Mr. Asaph Grasovsky.
Fruit Inspector — Ali Eff. Afifi.
" " — Mr. S. Fishelson.
" " — Mr. M. Aharonson.

ENTOMOLOGY

Entomologist — Mr. E. Ballard.

SERICULTURE.

Sericultural Officer — Mr. J. de Leon.

VETERINARY AND ANIMAL HUSBANDRY.

Chief Veterinary Officer — Mr. J.M. Smith, O.B.E.
Veterinary Officer — Ahmed Eff. Khairy.
" " — Abdel Fattah Eff. Sabassi.
" " — Mohammed Eff. Sidky,
" " — Mr. I. Samsonoff.
" " — Mr. J. Deouell.
" " — Mr. E. Cantor.

VETERINARY LABORATORY.

Veterinary Pathologist — Mr. S.J. Gilbert.
Assistant Veterinary
Pathologist — Mr. G.B. Simmins.

FORESTRY.

Deputy Director — Mr. F.J. Tear.
Senior Forest Officer — Mr. A.J. Grasovsky.

IRRIGATION.

Irrigation Officer — Mr. J.D. Shepherd, O.B.E.
(Seconded to Development Dept.)

POULTRY AND BEEKEEPING

Senior Poultry and
Beekeeping Officer — Mr. A. Livshitz.

KADOORIE AGRICULTURAL SCHOOL, TULKARM.

Principal — Mr. H.M. Heald.
Science Master — Mr. R.G. Khawam,
Stockman — Mr. T.R. Stodart.
Engineer — Mr. E. Fryer.
Agricultural Lecturer — Farid Eff. Taha.

KADOORIE AGRICULTURAL SCHOOL, MT. TABOR.

Principal — Mr. S. Zemach.

FINANCE — REVENUE AND EXPENDITURE.

Ten years ago, in 1923, the revenue of the Department was £P.10,535, and increased in the year under review to £P.34,627. The expenditure of the Department in 1923 amounted to £P.25,781. It has increased year by year, and in 1933 amounted to £P.114,833. The main heads of expenditure and revenue are shown below:—

EXPENDITURE.	1933. £P.
Administration, Clerical, Accounts, and Stores.	9,945
Veterinary, including Quarantine, Hospital, Contagious Diseases and Laboratory Services and attendance on Police animals.	20,595
Agricultural Field Service, including Experiments and Demonstrations.	13,767
Forestry.	13,696
Horticulture, Citrus Research, and Fruit Inspection	24,623
Advertising of Citrus Fruit.	*6,218
Animal Husbandry.	7,876
Entomological, including Fumigation and Plant Inspection at Ports of Entry.	16,118
Grant-in-aid of Agricultural Education.	2,546
Meteorological Service.	367
Fisheries Service.	667
Upkeep of Government House Grounds.	799
Sericulture.	1,171
Total.	£P.114,833

REVENUE.	
Animal Quarantine Fees.	10,250
Forestry Receipts.	4,808
Fruit Inspection Fees.	8,062
Citrus Advertising Fees.	7,849
Sale of Agricultural and Horticultural Produce.	792
Stock Farm Receipts.	1,524
Plant Fumigation Fees.	1,342
Total.	£P. 34,627

LEGISLATION.

The principal departmental enactment during the year was the Citrus Fruit Advertisement Ordinance under which a fee at the rate of $1^1/_2$ mils for every box of citrus fruit exported is collected, and credited to a special fund for the purpose of advertising Palestine citrus fruits.

*** Balance of Contract paid in subsequent financial year.**

LIBRARY AND PUBLICATIONS.

At the end of 1933 there were in the departmental library 4,180 pamphlets, 482 books and large numbers of catalogues appertaining to agricultural machinery, seeds, livestock and fertilisers. In addition, 220 periodicals and reports are received regularly from all parts of the world most of which are received free of charge or in exchange for reports and leaflets issued by this Department. During the year, 6 leaflets were issued on the following subjects, in Arabic, Hebrew and English and were distributed to farmers :—

Closed Smut of Barley.

Apple Growing in Palestine.

Pomegranate Growing in Palestine.

Summary of the Findings, Conclusions and Recommendations of the Poultry Committee on Eggs.

Report on Experimental Shipments of Eggs to the United Kingdom during the winter 1931-32.

Report on Fruit and Vegetable Preservation and By-Products in Palestine with special reference to Canning.

AGRICULTURAL MACHINERY.

There was an exceptionally big increase in the imports of agricultural machinery in 1933, mainly in respect of tractors introduced into Jewish Settlements. The imports of machinery increased from £P.8,112 in 1928 to £P.61,273 in 1933.

MANURES AND FERTILIZERS.

The shortage of organic manure is becoming acute in view of the increasing demands of the citrus groves for manure. Special efforts will be necessary by the Citrus Industry to set aside areas for the keeping of cattle and poultry to increase the supply of manure and for the raising of green manure. Imports of chemical fertilisers increased from approximately 6,000 tons in 1929 with a value of £P.49,379 to 10,324 tons in 1933 with a value of £P.94,170. In addition it was necessary to import 2,257 tons of organic manure valued at £P.6,147.

III. PRODUCTION.

Estimated production of the main winter and summer crops is shown below :—

METRIC TONS.

	1929	1930	1931	1932	1933
Wheat.	87,873	87,339	79,650	51,073	44,447
Barley.	46,240	60,071	41,200	24,300	33,926
Lentils.	3,840	3,800	3,758	1,606	1,547
Kersenneh	7,751	7,612	8,030	2,077	1,892
Beans.	3,977	3,384	3,670	768	655
Peas.	1,181	1,288	1,064	1,411	3,373
Dura.	31,439	37,058	16,562	15,452	8,860
Sesame.	4,169	2,365	2,024	449	214
Olives.	15,500	2,993	33,906	6,559	3,599
Melons.	16,298	14,840	22,059	32,125	20,434
Grapes.	5,345	5,936	8,295	21,653	12,148
Tobacco.	1,194	953	504	571	402
Vegetables.	15,963	12,865	15,068	24,371	21,305

VEGETABLES.

Vegetable production has increased considerably partly as a result of the importation of large quantities of good seed of many varieties by the Department, and the distribution of vegetable seedings to farmers. There are good prospects of increasing still further the production of vegetables owing to the larger demand in the towns by the increasing population.

Successful progress was made in the growing of potatoes, the area and production of which has increased by 250%. Local production is now sufficient for a 2 to 3 months supply and as a result of the increase in the tariff from £P.1 to £P.3 per ton during the main growing season — April to July, it is hoped to stimulate still further the production of potatoes. The estimated consumption is over 10,000 tons per annum. Apart from stimulating the production of potatoes by increasing the customs tariff, Government has imported considerable quantities of selected seed potatoes from England, Scotland and Ireland for distribution to farmers at cost price, and advice on the cultivation of potatoes is afforded by peripatetic instructors.

FISH.

The estimated catch of fish in 1933 was as under :—

			First Selling Price.
North :	Zeeb.	36 tons	£P. 1,825
	Acre.	61 „	3,501
	Haifa.	431 „	17,609
	Tantoura.	23 „	1,355
South :	Jaffa.	370 „	13,703
	Joura.	148 „	4,417
	Gaza.	61 „	2,323
		1,130 tons	£P.44,733
	Lake Tiberias	190 tons	3,230
	Lake Huleh.	240 „	4,800
		1,560 tons	£P.52,763

IV. ANIMAL HUSBANDRY.

1933-34 was a bad year for livestock. All livestock suffered and there were serious losses, particularly among sheep and goats. It was just possible to keep ploughing oxen and other working animals alive and in working condition with a little tibn and grain. It is feared it will take three to four years to make good the losses of livestock due to the drought. Fortunately no serious epidemic occurred.

IMPORTS OF ANIMALS.

There were imported through the 15 Animal Quarantine Stations 304,538 animals, of which 259,131 were sheep and goats and 22,276 were cattle. This is about a 40% increase over the number of animals imported in the previous year. It is noteworthy that the imports through the Haifa Quarantine Station amounted to over 170,000 animals which is more than twice the number imported through that station in the preceding year. In addition, 423,058 head of poultry were imported as compared with 279,971 in the preceding year. These increased imports were due partly to the losses during the drought, but were mainly to meet the increased demand of the larger population. A new and well equipped slaughter house was constructed at Jerusalem during the year and improvements and additions were made to slaughter houses in other places. 307,126 cattle, sheep and goats, camels and pigs were slaughtered in 1933/34 as compared with 286,823 in the previous year.

DAIRYING.

The improvement of dairy cows in Jewish Settlements continues and a large proportion of these cows yield as much as 4,500—5,000 litres of milk a year. 157 pedigree Dutch, Friesian and Swiss cows were imported by Jewish Settlements during the year.

The improvement of dairy stock in villages largely depends upon the growing of forage and generally the Arab cultivator has not yet understood the benefit which he will derive from growing forage crops and preserving fodder for feeding his stock.

The poultry industry continues to develop in spite of the large imports last year of 35,000,000 eggs and over 400,000 head of poultry. There were distributed from Government Poultry Stations 41,000 eggs and 2,600 pullets and cockerels for breeding purposes.

Efforts were also made to stimulate bee-keeping for which purpose 33 tons of sugar were imported by Government free of duty and sold to bee-keepers af cost price, while loans were granted by Government for the purchase of over 300 bee-hives and equipment.

ANIMAL DISEASES.

The incidence of animal disease in general was fortunately low during 1933/34. Details of the incidence of each disease are given in the Chief Veterinay Officer's report.

VETERINARY LABORATORY.

Apart from routine work in the Veterinary Laboratory, 19,991 and 2,485 laboratory tests of the blood of cattle and horses respectively were carried out in connection with schemes for the control of contagious abortion and dourine. Investigations were continued for the reduction of tick fevers in cattle and into the various types of bovine mastitis in cows, sheep and goats. Other diseases which received attention were:- Equine abortion, Fowl Typhoid, Fowl Cholera, Foul Brood of Bees, Fowl Pox and Diphtheria, Bovine Coccidiosis, Johne's Disease of Cattle, Egyptionella Pullorum of Fowls.

Vaccines and anti-sera were prepared for various kinds of anti-vaccine, thus:-

Anti-Anthrax Serum.	23,500 cc.
Fowl Cholera Serum.	14,050 cc.
Fowl Typhoid Vaccine.	6,400 cc.
Pigeon Pox Vaccine.	22,500 doses.
Haemorrhagic Septicaemia Serum.	4,000 cc.
Blackquarter Vaccine.	5,280 cc.
Blackquarter Serum.	5,475 cc.
Staphylococcus Vaccine.	500 cc.
Various diagnostic Anti-Sera.	2,170 cc.

STOCK FARM, ACRE.

There were maintained at the Stock Farm, Acre, herds of selected Damascus and Syrian goats, Lebanese cows and bulls, Kerry cattle, Scotch black-faced sheep, Karakul rams, a selected herd of local "Awasi" sheep, Damascus and Cyprus donkeys and various breeds of pure bred poultry, as follows:-

White Leghorns.
Wyandottes.
Rhode Island Reds.
Light Sussex.
Australops.
Black Leghorns.
Plymouth Rocks.
Native Breed.
Khaki Campbell Ducks.
Mammouth Bronze Turkeys.

Details of the animals introduced, bred and issued to farmers from the Stock Farm at Acre, are contained in the report of the Manager attached and in the Guide to the Stock Farm and Agricultural Station which was especially drawn up for the benefit of visitors to this farm which has increased in area from 100 dunams in 1926 to approximately 4,000 dunams in 1934. The Guide contains full details of the kinds of animals and poultry at the farm and the nature of breeding experiments in progress, etc. and will be issued free of charge to local applicants on application to the Manager of the Farm.

V. HORTICULTURE

JERUSALEM HORTICULTURAL STATION.

Owing to the inadequate rainfall, fruit trees made poor growth and it was therefore difficult to find sufficient budwood for propagation purposes.

New introductions included various varieties of peaches, nectarines, plums, pears, cape gooseberries and curuba (*Tacsonia spp.*).

JERICHO HORTICULTURAL STATION.

Distance of planting and irrigation experiments were carried out for citrus. Fertilizer and irrigation experiments were continued for bananas. Date offshoots were rooted and experiments made in the drying of dates with good results. The quality of the pawpaw fruit continued to improve and the Loquats, Anonas and Avocadoes were growing well. Mangoes were a failure and Persimmons were not too promising. Pomegranates, Guavas and Jujubes did well. Some 200 seeds of Litchi, introduced for the first time in Palestine, have germinated.

BEISAN HORTICULTURAL STATION (AND FARWANEH).

The soil at this Station has proved to be unsuitable for most fruits, with the exception of table grapes and pomegranates. Further horticultural work will therefore be continued at the Farwaneh Station some 5 kilometres distant from Beisan and 200 metres below sea level.

NABLUS HORTICULTURAL STATION.

This Station was established in the winter of 1933 as a centre for the cultivation of olives, walnuts, and pecans and other nuts and fruits. Some 15,000 fruit stocks of different kinds are already growing in the nursery.

ACRE HORTICULTURAL STATION.

100,000 sour orange seedlings were raised in the citrus nursery at this station and a fair proportion was distributed to the citrus growers of the Acre Sub-District whose weak trees were uprooted owing to infestation with Black Scale.

A vine nursery was also established to raise 30,000 table grape varieties.

A small citrus grove was prepared to demonstrate to citrus growers in the vicinity the best methods of cultivation. In addition, an area was set aside for the trial of over 70 budded varieties in order to ascertain those which are best suited for the Acre Sub-District.

There are also in the nursery at Acre over 100 different varieties of apples, pears, quinces, plums, loquats, walnuts, pecans, avocadoes, persimmons, pomegranates, olives and carobs.

MAJDAL HORTICULTURAL SECTION.

A small area of 36 dunams was set aside to test out different kinds of fruit trees and vines without irrigation and sub-tropical fruit trees other than citrus under irrigation.

FARADIYEH HORTICULTURAL STATION.

This station of 100 dunams was established in 1932. There are various varieties of apricots, peaches, nectarines, plums, olives, apples, pears and quinces, almonds, walnuts, pistachios, pecans and vines.

VI. AFFORESTATION.

During the year, 14 Forest Reserves were proclaimed over an area of 4,432 dunams, bringing the total forest reserves up to 234 covering a total area of 693,767 dunams or approximately 271 square miles.

A system of erecting whitewashed masonry cairns has been introduced at prominent points to bring the whereabouts of forest reserves to the notice of the public.

Prosecutions for offences rose from 1,462 in 1932 to 1,832 in 1933.

Forest fires were, happily, surprisingly few having regard to the drought, while owing to the even distribution and gentle character of the rains, soil erosion was less in evidence. Sand drift, however, was worse than usual. Natural regeneration of trees was conspicuous as a result of the continued protection afforded to forests.

Direct sowing of seed in situ was extended with good results. 1,284,404 plants were raised form 13 nurseries. Of these, 998,981 were transplanted in Government plantations, 160,112 were distributed free of charge to private individuals and institutions, and 496 were sold. Over 4,000 dunams were planted in some 20 different plantations, and in addition, blanks in areas planted in previous years were filled in.

The usual botanical and sylvicultural investigations were continued, new seeds and trees introduced, and experiments made in the utilisation of timber for fruit cases, veneer and charcoal production.

Special steps were taken to encourage the growing of carob trees, the fruit of which is useful both as an auxiliary source of food for animals and for the production of alcohol; the seeds of the beans also have an export value. There are over 250,000 carob trees in the country of which less than a quarter are grafted or budded, and the Forest Service raised nearly 40,000 carob seedlings.

VII. AGRICULTURAL STATIONS.

Agricultural Stations are now maintained at:—

Acre,
Farradiyeh,
Beisan
Jericho and
Majdal.

The area at Acre was increased by 882 dunams. 100 additional dunams were added to the Station at Jericho and 50 additional dunams to the Station at Farradiyeh.

1,554 metres of cement channels were laid down at Beisan in addition to 780 metres of earth channels. The earth channels at the Jericho Station were also replaced by cement channels to enable larger quantities of improved varieties of vegetables, particularly potatoes and tomatoes, as well as forage to be raised under irrigation.

The object of these Stations is to carry out and demonstrate improved methods of cultivation with respect to rotation, manures and fertilizers. Large quantities of selected seed are raised for distribution to farmers and imported varieties are introduced and acclimatised.

Details with regard to the areas of production and distribution of grain, vegetables and forage are given in the Report of the Chief Agricultural Officer.

VIII. AGRICULTURAL EDUCATION.

DEMONSTRATION PLOTS.

The number of demonstration plots was increased throughout the country with the object of demonstrating to farmers improved methods of cultivation and to encourage the conservation of fodder.

Demonstration plots for cereals were laid down in 53 villages. 87 plots were devoted to vetch, 314 plots to the raising of selected seed, 58 plots for potatoes, 108 plots for the growing of oats and vetch, 490 plots for the raising of maize for silage, 34 plots for the raising of maize seed, 43 plots for berseem and 12 plots for lucerne.

SCHOOL GARDENS.

The Department cooperated with the Department of Education in the establishment and maintenance of 133 school gardens in various districts. These school gardens are of great value to the rural community as an example to the villages, and the students are encouraged to take an interest in agricultural work, and are trained under experienced schoolmasters. 45 teachers in schools where there are village gardens have already been trained in agriculture at the Kadoorie School at Tulkarm. The Department supplied grain and vegetable seed, trees, vines and seedlings to these gardens as well as poultry, bees and silk worms.

HORTICULTURAL DEMONSTRATION PLOTS.

Apart from experiments in the Horticultural Stations and the raising of trees therein for propagation, various demonstration plots were instituted in the villages to demonstrate improved horticultural practice.

IX. SERVICES OF THE DEPARTMENT.

GRAIN.

In 1933, 46 tons of selected seed, wheat, barley, oats maize and legumes were distributed from Agricultural Stations, in addition to over 200,000 vegetable seedlings.

FUMIGATION.

200,538 citrus trees were fumigated against Black Scale of which number 145,762 were fumigated by Government contractors, the costs being recoverable from the owners. It is gratifying to record that nearly one third of the trees were fumigated directly by the grove owners themselves, or by private arrangements with contractors; and it is the intention of the Government to encourage owners to make private arrangements for fumigation whenever possible. In addition, 10,641 uneconomic trees were uprooted and 69,615 were cut back for regrafting.

SERICULTURE.

30,356 mulberry seedlings were distributed from Government nurseries and 100 trays, together with other equipment such as shelves, incubators and thermometers for raising silk worms were distributed to schools. Prizes were awarded to schools which raised the best cocoons at Kfar Tabor, Jenin, Sarafand, Ness Ziona and Gaza.

FRUIT INSPECTION.

Exports of citrus fruit during the season 1933-34 increased to 5,526,097 boxes.

Exports from Jaffa were 3,301,351 boxes, from Haifa 2,014,824 boxes and shipments via Kantara were 209,992 boxes. It is believed that exporters generally now appreciate the advantages of strict compliance with the Fruit Inspection Regulations in the interests of the trade as a whole. 105,171 boxes had to be rejected owing to fruit being infested with Red Scale, or because the fruit had soft blemishes, puffy skin or mechanical injuries, or because of irregular sizing or various moulds. Generally there has been an improvement in the grading and packing of oranges and grape-fruit for export. Several new packing houses were opened during the season with improved machinery for grading and sizing.

X. METEOROLOGICAL.

Records of rainfall, humidity, evaporation, air temperature, barometric pressure, wind velocity and direction continued to be taken at the nine official Meteorological Stations established at Acre, Haifa, Jenin, Tel-Aviv, Jericho, Gaza, Beersheba, Beisan and Jerusalem in addition to records of rainfall at 42 unofficial stations.

XI. RESEARCH AND INVESTIGATIONS.

At Agricultural Stations, 62 varieties of wheats were under trial, 31 varieties of barley, 13 varieties of oats, 4 varieties of vetch, 6 varieties of beans and various forage crops and several drought resistant varieties of maize imported from South Africa and elsewhere.

Ground nuts have been imported from West Africa and are under trial at Agricultural Stations.

Jerusalem artichokes, cuttings of Cassava and new varieties of tomatoes and potatoes have also been introduced. Some 70 varieties of new pasture and fodder plants and shrubs, imported mainly from Australia, are also under trial.

Capnodis spp. is a beetle which is a serious menace to stone fruit cultivation in Palestine and an intensive study of the pest has been instituted to endeavour to ascertain methods of control.

Studies are also being continued in the control of Codling Moth, Mediterranean Fruit Fly, Olive Fruit Fly, and in the bionomics of Black Scale.

Investigations were continued on the keeping qualities of oranges, the effects of ammonium bicarbonate on the storage of fruits, and the influence of windbreaks on the drop of oranges. Experiments were continued on the drying of apricots and prunes.

Visits were made by the Senior Horticultural Officer to Syria where he obtained some promising varieties of apricots, apples, pears and peaches for introduction, and also to Egypt to study the growing of dates and mangoes. A Horticultural Assistant also visited the Lebanon and studied varieties of loquats.

CANNING.

As a result of the recommendations of the Committee on Agricultural Economics and Marketing, the Government invited a canning expert, Mr. F. Hirst, M. Sc., A.R.C.Sc. to visit Palestine and report upon the prospects of fruit and vegetable preservation and by-products with special reference to canning.

Mr. F. Hirst arrived in May 1933, and his report has been printed in the three languages and distributed to growers and institutions concerned. Already much progress has been made in the local manufacture of jam, marmalades and jellies from local fruits; the canning and bottling of tomatoes and tomato products from the local crop which is abundant throughout the country, and in the preserving in brine of local cucumbers.

XII. GENERAL AGRICULTURAL COUNCIL.

The labours of the Council and the Citrus Fruit Committee bore fruit in the enactment of the Citrus Fruit Advertising Ordinance under which a fee of $1^1/_2$ mils is collected on every case of citrus fruit exported, and credited to a special fund for the advertising of citrus.

A special Finance Sub-Committee was formed to sift the financial implications of the various schemes of the Committees and Sub-Committees. This Committee has worked well in pratice, and resulting recommendations have been made to Government covering schemes of a wide and varied nature, including studies for the control of field mice, fowl pox, spirochaetosis in poultry, experiments in poultry feeding, studies in regard to vaccines and tick diseases, tuberculosis control, animal nutrition and breeding, milk recording and bee studies.

The Council submitted its observations to Government on the draft Irrigation Ordinance after prolonged examination.

The Committee on Agricultural Economics and Marketing dealt with various questions affecting trade with Egypt and other countries; the modification of customs duties and licence fees on products such as butter and milk-cream, wine, potatoes and onions, to encourage local production; canning, and the drying of raisins.

The Citrus Fruit Committee advised Government and co-operated with the official Fruit Inspection Service in the organisation of the export of the citrus crop.

The Committee of Agricultural Chemists, the Horticultural Committee, and the Committees on Plant Protection, Irrigation, Animal Husbandry, Agricultural Education, and Agronomy, also cooperated with the Council and the Government throughout the year, and examined and submitted various proposals for the improvement of Agriculture.

I desire to record my grateful thanks to the staff of the Department, administrative, technical and clerical, for the loyal support and assistance they have rendered throughout this difficult year, and to the members of the General Agricultural Council and the Committees thereof, for their valuable cooperation and advice.

Jerusalem.
October, 1934.

M.T. DAWE
Director of Agriculture and Forests.

ENCLOSURES.

Chief Agricultural Officer's Report.
Chief Veterinary Officer's Report.
Chief Forest Officer's Report.
Chief Horticultural Officer's Report.
Government Entomologist's Report.
Sericultural Officer's Report.
Reports of the Fishery Officers.
Report of the Principal. Kadoorie Agricultural School, Tulkarm.
Report of the Secretary of the General Agricultural Council.

ANNUAL REPORT

of the

AGRICULTURAL SERVICE

For the Year

1933/34.

For the third year in succession, the country was stricken by drought. The harvest of 1933 for both summer and winter crops, will long be remembered as the worst since the occupation. Farmers were already reduced to penury after the two previous bad seasons, there was barely sufficient seed grain in the country to meet requirements for sowing, and flocks and herds, and even draught animals, on the verge of starvation in summer, were dying in autumn and early winter.

2. It was evident in the late spring that a repetition of the relief measures provided by Government in 1932, would be again necessary. A total and partial remission of summer and winter tithes respectively amounting to £P.193,000 was approved. Animal taxes were remitted to an extent of £P.21,000. Loans of £P.76,000 to farmers in cash and in kind were issued to provide fodder for animals and seed for the autumn sowing.

3. A very late cold winter caused heavy mortality among stock and there was a great shortage of dairy produce. In order to furnish additional help, a comprehensive scheme of inter village roads was put in hand. This work in addition to providing an immediate cash income to villagers, improved and extended intervillage communication, a most necessary adjunct to agricultural progress.

4. The water supply of the country had been practically exhausted. Springs never known by the oldest inhabitant to be dry, were not flowing, and hill cisterns were empty early in summer. Villagers were trekking stock four and five hours distance to water them. Few residents in Galilee have seen the water line of the lake so low, or the Beduin of Ghor remember when the Jordan could provide so many shallow fords.

5. Additional hardship was caused to the rural population by a general failure of the main stand-by to most hill villagers, the olive crop. There were scanty fruit crops, and a medicore to poor yield of yet another cash producer, the cucurbitaceous crops.

6. No report on the disastrous agricultural year of 1933 would be complete without remarking on the reasons to which the general failure was attributable. I refer to the deficiency of the rains and abnormal climatic condition of the winter season 1932-33.

7. False hopes were raised by the fall of an abnormally heavy and general rain in September 1932, when the season can be said to have commenced. In October a further fall of from 37 mms. to 42 mms. was recorded in Southern Palestine.

8. The only advantage acruing from those rains was the presence of early grazing which admittedly did alleviate the situation as far as stock were concerned. From an agricultural point of view the rain did more harm than good. Afir or early sown crops germinated. Farmers anticipating an early and wet season, energetically pushed on with the sowing of exceptionally large areas of winter cereal and leguminous crops. Germination was excellent, and subsequent growth rapid. Drought and adverse climatic conditions in late October continuing well into December caused large areas of these cereals to die off.

9. Conditions in Northern Palestine, bad though they were, could not be compared with those in the Southern parts of the country. At a conservative estimate 250,000 dunams needed resowing in the Ramleh, Gaza, Hebron and Beersheba Sub-Districts, and even in Northern areas, especially in Nablus and Tulkarm, twelve to fifteen thousand dunams had to be resown.

10. Added to the failure due to the adverse climatic conditions, much damage was caused by birds devouring the germinating crops, more especially kersenneh and other legumes. The heaviest migration of starlings known for years, was noted in autumn and winter.

11. Seed grain in the country already exhausted, was imported from Syria and Turkey to relieve the situation.

12. Throughout the winter season the rainfall was light, but not badly distributed. The decisive factor causing the subsequent crop failure was the presence of abnormally warm weather during the winter, accompanied by strong drying winds. quickly discounting any benefit derived from the light falls.

13. Government assistance by way of the issue of seed grain coupled with better climatic conditions in February and early March pointed to an improvement in the agricultural situation especially in the hill districts.

14. A fall of rain during the first week of April gave further hopes to farmers.

Humid conditions caused a wide spread attack of puccinia graminis (red rust) among the winter cereals, with the inevitable result that any grain harvested was badly shrivelled.

15. In the Beersheba area a total failure of winter crops was recorded, with little better results in the central plains of the Gaza Sub District.

16. Abnormally hot weather with drying winds in the spring of the year, quickly evaporated any moisture left in the soil. It was evident that the growth of summer crops could only be poor.

In Southern Palestine only few farmers sowed any sesame. It failed to germinate. The dura crop gave not more than 20% of normal. The maize crop, cxcept where irrigated was cut and fed to animals green, to save a total loss. In the northern areas, with the exception of parts of the coastal plain, conditions were little better.

17. The flowering of the olive trees and vines, and subsequent setting of the berries, had however been good. Excessively hot weather and hot winds in June caused a heavy drop of fruit from vines, deciduous fruit trees, and olives.

The following figures reflect the estimated percentage of failure of the various summer and winter crops in both circles :—

Crop.	Northern Circle.	Southern Circle.
Wheat	60%	80%
Barley	30%	45%
Beans	70%	80%
Chick peas	40%	65%
Lentils	75%	80%
Kersenneh	80%	90%
Sesame	85%	95%
Dura	80%	95%
Maize	90%	100%
Tobacco	55%	
Olives	75%	75%
Melons	65%	70%

18. The sinking of many new wells in the coastal area resulted in the intensification of agriculture, and in the increase of the area under fruit and vegetables. This progress was mainly due to the following causes :-

a) The progress of land settlement in coastal villages,

b) The increase in land values,

c) The construction of roads and the development of motor transport, and

d) The increasing demand in urban areas for large quantities of vegetables, fruit, poultry and dairy produce.

19. Natural grazing by mid summer was scarce, in October it was non existant. Cisterns were empty. Many springs had ceased to flow, and stock were in an emaciated condition. The absence of an early rain aggravated the situation.

Tibn was almost impossible to procure, and, with berseem hay, was being imported from Egypt. The former comodity was being sold by the rotle as against the camel load.

20. Relief measures resorted to, in 1932, had to be again adopted. in September, fodder and seed loans to the extent of £P.55,000 were issued by Government as under:—

Northern District	£P. 22,000
Southern District	£P. 18,000
Jerusalem District	£P. 15,000
Total	£P. 55,000

21. Summer conditions obtained until mid December. Small or no stocks of seed grain were to be had on local markets. Wheat was being imported from Kerak and large quantities of leguminous grain were again coming in from Syria and Turkey to meet the demand for the sowing season.

22. Farmers after their losses of the two preceding years were chary of sowing cereals in September and October. Areas sown as afir in the true sense of the word, were negligible.

23. The continued non appearance of any appreciable fall of early rains forced the fellaheen to commence sowing. This was continued without interruption, and practically completed in some areas prior to the fall of the first and general rain.

As late in the season as mid December, dry conditions pointed to another abnormal season and it is recorded that on the coastal plain farmers were ploughing land for summer crop prior to the germination of winter cereals and legumes.

Altough light falls in various parts of the country had been registered, they were not in all cases sufficient to germinate the seed. No general rain fell until the last week of December.

The droughty conditions broke in the last week of the year, when a general and the soaking rain fell over the country, saving a situation which would have overwhelmed the agricultural community.

24. A fine germination of both cereals and leguminous crops was recorded throughout the country.

25. The months of January and February were marked by stormy cold weather with continual rain.

Falls of snow were of frequent occurrence in the hill areas.

26. It was at this stage of the winter that a heavy mortality among stock was reported from the northern and central dfstricts.

Weakened by continuous lack of food, abortion among lambing stock, and deaths of ewes and young cattle was prevalent.

Loans to an extent of £P. 3,500 for Jerusalem district and £P. 2,000 for the northern areas were issued to alleviate the situation.

The fear that ploughing oxen would be too weak to continue working for the cultivation of a maximum area for summer crops, coupled with the excellent prospects, led Government to approve further loans of £P. 1,400 in Northern District and £P. 4,500 in Southern to be issued at the discretion of District Commissioners.

27. Over the greater portion of the Northern areas farmers were handicapped by being unable to get on to the water logged land to plough. Sowing of wheat continued until as late as the end of February in consequence.

28. A serious set back to both early and late sown crops occurred in March, when dry conditions continued until the first week of April.

29. A threatened plague of field mice in the Northern areas failed to materialize owing to quick action by the Department.

30. The appearance of a wide spread attack of Scythris temperatella was noted in March. The damage to the short, late sown crops was considerable and aggravated by the dry conditions obtaining during the month. The more advanced crops recovered, assisted by a fall of rain in mid April.

In some instances badly affected crops were fed off or ploughed up for summer sowings.

The greatest damage was caused in the eastern parts of Ramallah, Jerusalem, Nablus and Jenin sub districts. It is estimated that of a total in the vicinity of 40,000 dunams attacked, 8,000 would probably become a complete failure.

Every endeavour has been made by the field staff of the department to induce farmers to change their rotation as the most reliable means of checking a recurrence of the pest.

31. At the date to which this report refers, there is every prospect of a normal harvest of all varieties of winter crops.

32. The small holding of the individual farmer coupled with the difficulties attendant on the Mushaa system of land tenure makes extensive farming difficult and at the same time unremunerative to the majority of cultivators.

33. The constructive policy of the agricultural service has, as its ultimate aim, the gradual transition of the extensive to a more intensive type of farming.

34. As land settlement work extends, so is the task becoming gradually easier. Difficulties in the way of the intensification of agricultural practices, mainly arise from the stand taken by the old conservative farmers, and to no small degree by the scarcity of sufficient water for irrigation purposes. These are gradually but surely being evercome by demonstrating to them better methods, improving their seed and livestock, and loaning them an improved type of implement, coupled with the activity noted in the sinking of wells and bores following land settlement.

35. Through the medium of agricultural education more advanced ideas are being inculcated into the brain of the rising generation of farmers.

A scheme of cooperaton with the Department of Education has been inaugurated. School gardens are supplied with improved vegetable seed and fruit and forest trees, and the field staff of the service give any assistance required.

36. Arrangements have been made for demonstration plots to be established in the vicinity of schools at which trained masters are in charge. The eradication of pests is being accomplished by the introduction of portable seed cleaners and graders which have been readily accepted by farmers.

37. The treatment and prevention of crop diseases has been continued through the medium of peripatetic instructors lecturing to farmers, combined with the distribution of insecticides and fungicides with the machines to use them.

38. The activities of the extention service of the department have expanded very considerably during the year. In addition to the distribution of selected and improved grain, plots demonstrating the use of better agricultural implements, the growing of maize for silage, oat and vetch as hay, and maize as a grain crop have been established. A more detailed note on this subject is found in another section of this report.

39. With regard to new stations established, two items of importance can be mentioned.

The shortage of land at the Jericho Horticultural Station did not permit of establishing an agricultural section.

An area of 100 dunams adjoining the station was acquired. During the year trials have been carried out with various imported varieties of vegetables, especial attention being given to times of planting experiments and varietal tests with tomatoes, potatoes, other vegetables and forage crops. The section also serves as centre for raising seedlings for distribution to village schools and market gardeners. Late in the year a comprehensive canalization scheme was completed. The levelling of the whole area is envisaged during 1934 with a further main canal to serve the eastern portion.

At the hill station of Farradiyeh a further area of fifty dunams was acquired, making the agricultural section total 200 dunams.

40. An additional service undertaken is the commencement of agrostological work in the forest areas.

The improvement of natural pastures has during the year been commenced by the Agricultural Service.

The natural grazing of the country is rapidly becoming exhausted mainly due to over stocking, the need for rotational grazing by villagers, and the decided increase of horticultural activities in hill districts, on land that was previously available as rough pasture.

41. The testing of the suitability of grasses imported from Australia and elsewhere, has been carried out in pockets of soil on forest areas with little or no preparation, and under natural conditions. The area of these plots will be considerably extended.

42. Further tests have been made of the effect of a light cultivation and the application of fertilizers on natural grasses after the early rains in forest areas. This type of work will also be appreciably extended.

43. A sum of £P.120 was allocated for this service. This amount has been increased to £P.633 in the current estimates to carry out a more comprehensive programme.

44. The question of the introduction of rotational grazing, so necessary to the preservation of natural pastures, is under consideration.

45. In an endeavour to improve grazing in the arid regions, several Atriplex (Saltbush) species were imported. Experiments with the propagation of indigenous varieties have been put in hand.

46. The prevalence of so many plant diseases in field, vegetable and fruit crops, makes the absence of a mycologist among the staff of the Department keenly felt.

A close cooperaton with Dr. I. Reichert of the Rehoboth research station has has mitigated matters to a great extent.

A member of the field staff of the service will be detailed for a tour of instruction at Rehoboth.

Demonstrations in connection with the eradication of dura smut are already in hand in cooperation with villagers.

A grant in aid to the Rehoboth Station of £P.350 for this service is included in the current approved estimates.

47. An outline ef the mycological activities embraces extension work, a survey of diseases, research, and cooperation with the field staff of the Agricultural and Horticultural Sections.

48. A close liaison is kept with Dr. E. Volcani and his staff at Rehoboth. A coordination of scientific research at Rehoboth and field work at agricultural stations is maintained as far as is possible. Particular attention is paid to the introduction of new crops for industrial purposes, and intensive cultivation with a view to ascertaining the minimum area which will support a family.

SERVICES OF THE DEPARTMENT TO THE PUBLIC:

ISSUES OF SELECTED SEED FROM AGRICULTURAL STATIONS:

49. Annually the demand for selected seed raised at agricultural stations increases.

The supply available from all stations necessarily limits the weight of parcels supplied to individual farmers whether gratis or on payment.

It Is pleasing to note that villagers will pay up to 10% more for seed originally derived from Government grain, from neighbouring farmers.

As far as is possible only those varieties suitable to their particular districts are distributed to cultivators.

Small lots are issued gratis, but no difficulty is experienced in selling larger quantities.

The following table shows the amount of grain issued from the agricultural stations during the last two years, and the expected quantity available from the 1934 harvest:—

Kind	1932 Amount M. tons	Value LP. mils	1933 Amount M. tons	Value LP. mils	1934 Amount M. tons	(expected) Value LP. mils
Wheat	11½	126.	10½	106.	51	561.
Barley	16¾	110.	15¾	126.	43	344.
Oats	5	40.	4	32.	9	72.
Maize	2½	20.	3½	28.	27	216.
Legumes	3	24.	13	104.	18½	148.

ELIMINATION OF NOXIOUS WEED SEED:

50. The campaign against Taradan (Cephalaria syriaca) and Ziwan (Lolium temulentum) is being maintained. The number of portable grain cleaners was increased by five for use in districts.

Each agricultural station is equipped with a grader and cleaner which is also available for use by farmers. The machines in addition to eliminating weed seeds give a fine sample of seed grain.

The following figures show to what extent these small machines have been of benefit to farmers.

Villages served	No. of farmers served	Tons of seed cleaned & graded
21	180	199

In addition to the above, 18 tons of grain were graded by the machines at agricultural stations by villagers living close by.

51. In an endeavour to promote the growth of imported varieties of vegetables showing characteristics such as earliness in coming to maturity, drought resistance and adaptability to soil conditions, seedlings in large quantities for distribution to farmers, are raised at agricultural stations.

The demand for these seedlings is heavy. An appreciable improvement can already be noticed in market gardeners' produce. During the year under review, a total of 202,800 seedlings valued at LP.60. have been distributed.

In addition to the distribution of seedlings, imported vegetable seed to an amount in the vicinity of LP.100 has been issued.

AGRICULTURAL ACTIVITIES:

AGRICULTURAL MACHINERY:

52. It is questionable as to whether a good agronomist would advocate the use of expensive agricultural machinery and modern labour saving devices for the small holder. The Arab cultivator has neither the power to work nor the money to purchase them.

53. Every endeavour however is made by the department to induce farmers to purchase better types of light cultivating implements in the shape of steel ploughs, cultivators, and harrows.

54. The more progressive Jewish cultivator with the cooperative system adopted in settlements is relying on the tractor in lieu of draught animals, and on modern cultivating and harvesting machinery and dairy appliances. Annually imports of farm machinery are growing as can be seen from the following table:—

	1928	1929	1930	1931	1932	1933
	LP.	LP.	LP.	LP.	LP.	LP.
Reapers & threshers	838	3,158	2,906	79	1,810	1,034
Motor ploughs	1,031	10,107	13,722	1,698	1,281	3,692
Ploughs	716		4,410			
Dairy appliances	475	971	608	1,209	1,008	3,842
Incubators	627	2,340	1,545	2,167	1,154	948
Beehives	—	—	469	228	78	107
Other machinery & tractors	4,425	9,830	10,063	11,186	12,342	6,342 45,308
Total	8,112	26,406	33,723	16,567	17,673	61,273

MANURES AND FERTILIZERS:

55. There is a distinct dearth of organic manure on farms due to the demand of the orchardists in the citrus belt.

56. The question of the prohibition of the collection of organic manure, leading to the improvement of one industry and to the detriment of the soil fertility of village lands has been under consideration.

While farmers generally support any suggestion of a repression of the trade, itinerant Bedouin, shepherds and landless villagers find a lucrative business in a wholesale collection of manure and sale thereof to agents.

Many citrus orchardists are increasing the number of their livestock solely for the production of manure, and during the year have imported 2,257 tons of various organic fertilizers at a cost of LP.6,147.

57. Systematic manuring is not a strong point of the Arab farmer. He applies the village sweepings to his land when it is available; and for maintenance of soil fertility, other than that, trusts to the normal rotation of legumes or summer crop to supply the plant food necessary for the following cereal.

58. There is however a growing demand for chemical fertilizers which is not confined solely to Jewish farmers. The orchardist is realizing the value of a complete fertilizer and the Arab cultivator is gradually appreciating the value of applying nitrogenous and phosphatic manures to his land. The imports for the year show an appreciable increase over those of 1932, as is shown in the following schedule:—

IMPORTS OF FERTILIZERS:

1929	5,986 tons	Value LP. 49,379
1930	7,328 „	64,073
1931	4,463 „	38,858
1932	7,489 „	50,211
1933	10,324 „	94,170
	2,257 „	6,147 (organic manure)

PRICES OF CROPS:

59. The high prices of cereals ruling at the end of 1932, were maintained throughout 1933. Wheat fluctuated between LP. 10 to LP. 12.500, and barley from LP.5.250, just after the harvest, to a maximum of LP. 7. per ton.

Notwithstanding the poor summer crop yields, the average price for dura during the year was only 299 mils in excess of that for the past six years.

Sesame prices were at their maximum in September at LP.23, averaging for the year LP.20 per ton.

The price of leguminous forage grain kept high throughout the period under review, kersenneh being sold at as high a figure as LP.10 per ton, with gilbaneh and vetch at from LP.7.750 to LP.9.250 for the same quantity.

Tibn prices throughout the year showed no standard figure for the whole country. In some districts the commodity could not be purchased at LP.4.500 per ton while in others it was changing hands at the same time at LP.2.500.

No outstanding increase in the price of vegetables was noted. Seasonal fluctuations were normal.

PRODUCTION:

CEREALS:

60. The area under cereal crops in 1933 was perhaps the largest that has been seen for some years.

This increase was due to the presence of the early rains leading farmers to anticipate a good year.

That the season turned out to be disastrous can be seen from tables given below:—

METRIC TONS.

Kind	1929	1930	1931	1932	1933
Wheat	87,873	87,339	79,650	51,073	44,447
Barley	46,240	60,071	41,200	24,300	33,926

WHEAT:

61. A failure of the crop in Southern Palestine with the exception of the central hill area, was general. In northern Palestine wheat crops were little in advance of those further south, but on the whole did not give 50% of a normal yield. The grain was poor and shrivelled mainly due to the wide spread and heavy attack of puccinia graminis (red rust).

In experimental stations forty eight varieties of wheats were under trial, and increased to sixty two in the autumn sowing season of 1933.

Ten tons of selected wheats were distributed to farmers, but withstood the adverse climatic conditions only little better than local wheats.

BARLEY:

62. The barley harvest though very poor, was somewhat better than that of the wheat. A total failure was recorded in Beersheba, Tiberias and the eastern parts of Jerusalem, Nablus and Jenin sub districts. On the coastal plains and foot-hills yields were about 30% below normal.

There were twenty two varieties under trial at various agricultural stations, increased to thirty one in the autumn sowing season of 1933. Drought resistant types have been imported from Australia for trial.

Sixteen tons of selected barley seed from agricultural stations, was distributed to farmers.

LEGUMINOUS CROPS:

63. A heavier failure was recorded for leguminous winter crops than for the cereals. In districts where there was not a complete failure only 20% of a normal crop was harvested.

A serious shortage of leguminous forage grain was apparent during the year, resulting in large imports from Syria and Turkey.

The following statement shows the production of the main leguminous crops in *metric tons* for the past five years :—

Kind	1929	1930	1931	1932	1933
Lentils	3,840	3,800	3,758	1,606	1,547
Kersenneh	7,751	7,612	8,030	2,077	1,892
Beans	3,977	3,384	3,670	768	655
Peas	1,181	1,288	1,064	1,411	3,373

With the exception of isolated areas there is every prospect that the harvest of 1934 will be above the average.

SUMMER CROPS :

64. The summer crops were a complete failure throughout the country.

In the southern areas practically no sesame was sown. Ninety percent of the summer crop land was put under dura. Yield of crops which were not a total failure were only from 10 to 20$^0/_0$ of the normal. The unirrigated maize crop failed completely, and was cut when very short and fed to animals or grazed in situ.

In the Northern Circle, with the exception of the irrigated areas, the failure was almost on a par with that of Southern Palestine. The sesame was not worth reaping. The maize and dura crops only yielded ten and twenty percent of the normal, respectively.

The summer vegetables sown as field crops suffered somewhat in the hill areas, nevertheless supplies were fair to good.

The melon crop was only 35$^0/_0$ of normal and individual fruits were small and poor in quality.

65. The olive crop was badly affected by siroccos in June, causing a loss of 75$^0/_0$ to 80$^0/_0$, by the drop of berries which had set comparatively well. The grape yield was under 40$^0/_0$ of the usual weight gathered. The only fair returns for the summer were from the tobacco crop which was favoured by heavy dew falls throughout most of the growing period.

The production of summer crops, *in metric* tons, is shown in the following table:—

Kind	1929	1930	1931	1932	1933
Dura	31,439	37,058	16,562	15,452	8,860
Sesame	4,169	2,365	2,024	449	214
Olives	15,500	2,993	33,906	6,559	3,599
Melons	16,298	14,840	22,059	32,125	20,434
Grapes	5,345	5,936	8,295	21,653	12,148
Tobacco	1,194	953	504	571	402

MAIZE :

66. The extensive growing of the crop, as far as the Arab farmers are concerned, is mainly confined to the Huleh area, under natural irrigation. In Jewish and German colonies it is the rule rather than the exception to grow maize for grain, silage and green forage.

The Department is endeavouring to promote the cultivation of maize as a raincrop by free distribution of seed, for both forage and production of grain. A firm market exists, and commands better prices than offered for dura.

Several varieties have been lately introduced from South Africa. Three other varieties known to be the most drought resistant in the agricultural world are being tested in agricultural stations.

Over fourteen tons of seeds were distributed in the early spring for the season's sowing.

67. The following schedule shows the area under the crop and production for the past three years:—

Area under Maize for Grain and Forage:

Year.	Dunams.
1931	23,374
1932	39,373
1933	61,448

Production of Grain in Metric Tons:

Year.	Tons.
1931	1,535
1932	891
1933	345

VEGETABLES:

68. There is a marked increase in the production and quality of vegetables in the country. This is directly due to the demands of the rapidly swelling European population who ask for a better type of vegetable than that hitherto grown.

Production Schedule of Vegetables:

PRODUCTION IN TONS.

1929	1930	1931	1932	1933
15,963	12,865	15,068	24,371	21,305

69. The progress in respect of quality is in a great measure due to the activities of the Agricultural Service in annually distributing seed and seedlings grown from imported European and English stock. The presence of an increased number of seed merchants in central towns, has also a great bearing in the quality of vegetable products.

70. At a recently held "farmers day" at the newly established Majdal Station, 6,500 tomato seedlings were eagerly accepted by market gardeners who had seen the magnificent crop from the same varieties growing in the station. During the autumn alone, 43,500 cauliflower, 38,000 tomato, 3,000 cabbage, 6,000 sweet potato and 3,000 lettuce seedlings were distributed. Imported seed of tomato and onions were issued to school gardens.

71. During the spring of the year large numbers of tomato seedlings for the summer crops were prepared for subsequent distribution.

POTATOES:

71. There is a decided activity among farmers, more especially in Southern Palestine, to increase the area under this crop. The increased tariff of £P.2. per ton lately put on potatoes by Government, has been appreciated. The Agricultural Service among its other endeavours to assist farmers, imported $8^1/_2$ tons of English and Scotch varieties which were distributed to cooperating market gardeners for the winter sowing.

Exhaustive trials are conducted at Agricultural Stations with a view to determining the most suitable varieties for the country, and most economic date for earliest and latest sowing.

72. The following schedule will show the importance of the crop to the country.

Year.	Area in dunams.	Production in metric tons.	Imports in metric tons.
1930/31	2,224	1,101	6,821
1931/32	2,344	821	7,780
1932/33	2,329	1,018	6,821
1933/34	5,000	2,500 (estimated)	9,753

MISCELLANEOUS CROPS.

73. Great difficulty is found in inducing the farmer to grow crops other than those to which he is accustomed. Inroductions of crops not unniversally grown are made at all agricultural stations and embrace linseed, groundnuts, artichokes and various varieties of forage crops, grasses and roots.

ARTICHOKES :

74. Improved varieties of Jerusalem artichokes have been imported from England and are now uuder trial at Experimental Stations.

Imports from Egypt are finding their way on to Palestine market.

Areas under the crop in Palestine are limited to a few dunams annually.

SWEET POTATOES :

75. Only negligible areas, and mainly confined to the Jaffa district are under this crop. The market depends on imports from Egypt. The crop is being cultivated at agricultural stations from which 32,000 seedlings have been distributed.

LINSEED :

76. From one to three tons of grain are distributed to farmers annually from agricultural stations.

The growing of the crop by private individuals is now practically confined to Jenin sub district on very limited areas.

Renumerative crops are grown under irrigation at Beisan. The local market prices dropped from £P.13 per ton to the present figure of £P.8 making the crop less profitable than wheat, with the attendant result that the area under cultivation shows a distinct decrease.

The following table shows the area cultivated and quantity produced in metric tons for the past five years :—

Year.	Dunams.	Tons.
1928/29	882	54
1929/30	2,836	174
1930/31	11,182	269
1931/32	6,882	347
1932/33	1,270	15
1933/34	400	—

Note: In 1930-31 advances of seed to be repaid at harvest, were made to farmers by the Shemen Oil Company.

TOBACCO :

77. THE TOBACCO INDUSTRY

The industry cannot be said to be on as sound a footing as could be desired, especially in respect of quality of leaf and prices obtained by producers.

The comparatively high revenue obtained from the tobacco industry does not favourably compare with the prices received by growers, nor with the assistance they receive.

78. The leaf grown is not acceptable abroad and imports of leaf for blending have been comparatively high. The education of the tobacco growing farmer is more or less in the hands of experts from the tobacco manufacturing firms.

79. The soil and climatic conditions of the Northern areas of the country are suitable for the production of Turkish leaf. An improvement in quality and prices could be accomplished if growers would cooperate.

80. It would appear essential for the appointment of a Government Tobacco Expert, and failing more cooperation and organization among growers, for Government to establish one or more experimental stations and factories for the after treatment of the crop.

81. The yield for the season was 50⁰/₀ below the normal owing to adverse climatic conditions experienced.

The following figures show the extent of the industry :—

Year.	Aera in dunams.	Yield in M. tons & kgs.
1929	20,810	1,193,943
1930	23,457	953.839
1931	13,479	504.198
1932	12,369	571.388
1933	9,328	402.623

82. There is a decided tendency for the area under cultivation to decrease, partly attributable to the increasing demand of manufacturing firms for a better article, which is gradually lessening the number of growers, and partly to the excess of supply over local demand.

Growers are entirely in the hands of manufacturers as regards prices, which show considerable variation, due to the demand of the local factories, the amount held over from previous years, and the condition of the crop in any one year.

83. The following schedule shcws the amount in mils per kilogramm obtained by growers for the last five years.

Year.	1st. quantity. mils.	2nd. quantity mils.	3rd. quantity mils.
1929	80	60	40
1930	80	40	20
1931	100	78	46
1932	93	62	46
1933	100	85	62

84. Imports, which were perceptably decreasing, due to manufacturers finding a suitable leaf in Bafra variety for blending purposes, rose in 1933.

Year.	Leaf in Kgs.	Mauufactured Tobacco in kgs.
1929	124,155	2,044
1930	114,848	2,563
1931	101,271	2,270
1932	75,513	3,012
1933	88,303	3,406

85. It can be confidently stated that with a close liaison between Government and growers and more cooperation among themselves, there should be every prospect of a demand for Palestine leaf on foreign markets.

AGRICULTURAL EDUCATION :

86. In addition to the education given at the Kadoorie Agricultural Schools, the service makes every endeavour through the medium of the field staff, demonstraton plots, and school gardens to instill agricultural knowledge into the minds of the rural population.

87. **DEMONSTRTION PLOTS :**

These plots have been appreciably extended throughout the country. Equal importance is attached to the growing of forage crops, as is to the distribution of selected grain, and plots demonstrating good rotational systems.

88. The conservation of fodder as silage has appealed to a fair proportion of villagers. It is pleasing to report that many have put down pits on their own initiative.

89. The production of oat and vetch hay does not appeal to the older farmer — he has not sufficient land to set aside for the purpose — and continues to pin his faith to feeding with tibn mixed with grain.

The Department has issued large quantities of oat and vetch seed during the year, and the number of plots under this crop has been greatly enlarged.

90. The following schedule will show the activity of the service in this respect.

	1930/31	1931/32	1932/33	1933/34
Village Demonstration plots.	15	23	34	53
Vegetable plots	8	61	83	87
Village nurseries	13	22	16	16
Seed farms	9	126	199	314
Potato plots	10	31	43	58
Oats and vetch plots	—	6	17	108
Maize plots (silage)	—	—	18	490
Maize plots (seed)	—	—	9	34
Lucerne	2	4	8	12
Berseem	2	12	30	43

RESULTS FROM DEMONSTRATION PLOTS 1933 :

In many instances and more especially with regard to barley and oats, seed grain distributed from agricultural stations gave decidedly better yields than did local varieties, notwithstanding the poor season.

SCHOOL GARDENS :

91. As a further means of inculcating elementary agricultural knowledge into the minds of pupils, village school grounds wherever possible have plots of varying sizes set aside for the demonstration of elementary agricultural and horticultural work.

The field staff of the service cooperates with officers of the Department of Education in charge of these gardens.

92. There are forty five teachers who have been trained in agriculture at the Kadoorie school, distributed through the country. A further fifteen are now completing the course.

These officers are proving of great benefit to the farming community in their respective districts.

93. The following data will emphasize the foregoing remarks:—

NUMBER OF SCHOOL GARDENS :

Nablus S/D.	14	of which	5	are of less than	2	dms.	in area
Jenin	8	"	1	"	2	"	"
Tulkarem	17	"	10	"	2	"	"
Jerusalem	13	"	4	"	2	"	"
Hebron	4	"	1	"	2	"	"
Acre	25	"	7	"	2	"	"
Nazareth	6	"	1	"	2	"	"
Safad	11	"	2	"	2	"	"
Tiberias	5	"	2	"	2	"	"
Beisan	1						
Jaffa	10						
Ramleh	7						
Gaza	11						
Beersheba	1						
Total	133						

STOCK OBTAINED FROM THE DEPARTMENT OF AGRICULTURE AND FORESTS:

		Kgs.
Vegetable seeds	10 varieties	11.400
Wheat	3 "	459. -
Barley	3 "	255. -
Peas		160. -
Linseed		40. -
Oats		25. -
Potatoes		1,250. -
Tomato seed		5. -
Vegetable seedlings		32,600. -
Forest trees		28,565. -
Fruit trees		706. -
Grape Vines		600. -

STOCK RAISED AT SCHOOL GARDENS:—

Fresh vegetables sold	LP.	82.600
Seedlings of vegetables distributed to farmers		29,640.
Seeds of vegetables sold to farmers	kilos.	246.
Forest trees distributed to farmers		4,510.
Fruit trees distributed to farmers & raised in school gardens		480.
Fruit trees seedlings growing at present in school gardens		10,600.
Fruit trees purchased from contributions of students & teachers & distributed to farmers		20,209.
Fruit trees grown in school gardens		1,766.

OTHER ACTIVITIES:

Poultry raising is practised in five centres.
Beekeeping is practised in ten centres.
An incubator of 300 eggs is now operating at Qalqilia.
Silk worms are raised in five centres.

Ten spraying machines are at present in schools and are used by scholars and farmers as the need arises.

94. AGRICULTURAL STATIONS:

A chain of five agricultural stations through the country serve the farming population. The production of true to type selected seed for distribution, comprehensive and systematic experimental work, the acclimatization of imported varieties of varied kinds of crops and the production of vegetable seed and seedlings, constitute the work undertaken at these stations.

A general and constantly growing demand for seed and seedlings from these Government centres, provides satisfactory evidence of their benefit to the agricultural community.

The following notes on each station are given in support of this statement.

ACRE AGRICULTURAL STATION:

95. **An area of 822 dunams was acquired on lease during the year. One portion of 646 dunams lies on the road from Acre to Safad within the boundaries of Berweh village. The remaining area of 176 dunams lies to the east of Manshieh village.**

Both areas are under winter crops. A heavy yield throughout is expected.

96. The harvest of 1933 was the poorest experienced since the station was established. Only 37 tons of cereals, 7 tons of leguminous and $3^1/_2$ tons of miscellaneous crops were reaped. The sample of grain was not up to standard.

97. In the experimental area a series of rotational, manurial, cultivation, and soil improvement experiments have been commenced on appreciably large areas, in place of the small plot system previously adopted. In the grain breeding section, most careful attention is paid to individual and plot selection, the testing out of strains of local types, and the introduction and acclimatization of imported varieties of cereals, legumes, and miscellaneous crops. Over 1,000 strains are under trial at present.

98. A harvest well up to the average for wheat and above normal for barley and leguminous crops is expected.

99. The cropping plan for 1933/4 is shown in the following schedule which also reflects the estimated yield :—

Kind	Dunams	Metric tons
Wheat	421	41
Barley	263	40
Oats	55	7
Legumes (for grain)	288	21
Hay	69	15
Summer crops	409	15

100. Oats and vetch hay crops grown in course of rotation are issued to the stock breeding service and credited to the agricultural section.

101. The vegetable section has been considerably developed during the year. Fifty three imported varieties have been planted. This section now covers 22 dunams and will be appreciably expanded in 1934.

Seedlings from the station totalling 52,000 have been distributed during the year, and vegetables to the value of LP. 45. sold on the Haifa market.

102. Experimental work with a view to the improvement of natural pastures was commenced on an area of 15 dunams.

Grass plots have been established exclusively for the production and acclimatization of seed.

103. The permanent staff has been increased by an Assistant Superintendent, and a Vegetable Expert. The expenditure for the agricultural section is as follows :—

EXPENDITURES :

Purchase of equipment	£P.	75.800
Casual labour		303.197
Fuel for tractor		179.156
Upkeep of machinery		52.920
Construction work		12.505
Repairs to carts and harness		27.665
Purchase of seed		92.505
Purchase of fertilizers		214.045
Purchase of fungicides		10.122
Purchase of forage		8.700
Total	£P.	976.615

BEISAN AGRICULTURAL STATION :

104. There has been no alteration in the area of this station during the year.

A long needed system of cement channels extending over a length of 836 meters were built in the main experimental field after the completion of a topographical survey. In March 1934, a further length of 708 meters of cement drainage canals were built in the main crop fields to the south of the buildings, and augmented by a further 780 meters of earth channels.

105. During the period under review a system of experiments dealing with the duty of water have been commenced.

106. An area has been set aside for experimental, acclimatization, and seed breeding work with vegetables, grasses and forage crops. During the period covered by this report 130,800 seedlings of various varieties of vegetables were raised and distributed to market gardeners and village schools.

107. The harvest results of field crops during the season were quite up to standard with the exception of the wheat, beans and peas. Outstandingly heavy yields of barley and linseed were reaped.

108. The following schedule reflects the harvest yield of 1933:—

Kind.	Area in dunams.	Yield in M. tons.
Wheat	38.500	2.750
Barley	18.500	3.750
Oats	10.	1.250
Beans	5.	0.250
Linseed	10.	1.500
Peas	7.500	0.500
Lentils	10.	0.500
Vetch	5.	0.330
Berseem	30.	0.750 (seed)
Maize	25.	3.330
Sesame	7.500	0.330

109. In the main fields the winter crops for the 1933/34 season show every prospect of producing heavy yields.

Areas under grain crops are as follows:—

Kind.	Area in dunams.	Estimated yields in metric tons.
Wheat	24	2
Barley	40	4½
Oats	20	3
Vetch	5	½
Linseed	15	2
Beans	9	½
Peas	12	½
Berseem	10	½ (seed)
Maize	14	2½
Sesame	5	½
Hay	5	1½

110. The experimental area is devoted to intensive cultivation with the growing of berseem as the main crop followed by two, three, and four course rotations with wheat, barley, oats, maize, roots and vegetables as crops.

111. Irrigation experiments are in hand to determine the quantity of water necessary for various crops, and intervals at which it is applied.

Yields of berseem to the date to which this report extends have been heavy.

112. In the variety section, 7 varieties of wheat, 10 of barley, 6 of lucerne and 23 of grasses have been sown.

Exceptionally heavy crops of forage kale and roots have been grown. Seed from selected plants is kept for distribution.

113. It is expected to be able to have for sale and distribution, $1^3/_4$ tons of wheat, 4 tons of barley, $1^1/_2$ tons of maize, 2 tons of linseed, $2^1/_2$ tons of oats and 2 tons of leguminous forage grain.

114. The expenditure for the station owing to the labour required for irrigation is necessarily heavy and is set out below:—

Labour	£P. 405.245
Purchase of materials	29.538
Repairs	16.272
Purchase of tools	30.000
Purchase of seed	7.255
Purchase of manure & fertilizers	7.385
	£P. 495.695

JERICHO AGRICULTURAL STATION.

115. One hundred dunams of land adjacent to the horticultural station were acquired for the purpose of establishing an agricultural section. Work was commenced in mid summer of the year under review.

116. Clearing, levelling and canalization operations were put in hand immediately, and towards the end of the year a system of cement canals replaced the earth channels.

The whole section cannot be irrigated at once.

117. The main objects of the section are to experiment with various vegetable crops in an endeavour to determine dates on which sowing can take place, in order to put produce on an out of season market; and the production of seeds and seedlings of imported and approved types for distribution. The raising of forage crops, grasses and forage shrubs is also in hand. Small areas of cereal crops are grown, for seed distribution.

118. An area of fifty two dunams was under crop during the autumn and winter with potatoes, tomatoes and other vegetables, forage crops of lucerne and berseem (preparatory), and a small area was under cereals.

119. Times of planting tests with potatoes were commenced in September. Six and a half dunams were planted at intervals from September 9th until October 10th.

The varieties tried were Great Scot (Cyprus seed) and Zahlawi (Syrian).

The three early plantings did not return the quantity of seed sown. These results, however, are by no means conclusive as it had not been possible to do any extensive preparatory work prior to planting. The seed, very difficult to obtain at the time, was in poor condition.

Plots sown in October 10th, gave decidely more successful results, the Cyprus and Zahlawi varieties yielding $^1/_2$ and $1^1/_2$ tons per dunam respectively.

In the winter, seven imported English and one Dutch variety were planted at weekly intervals with varying quantities of manures and fertilizers.

120. Varietal trials with other vegetables mainly tomatoes, trellaced, staked and under local cultural methods, were put in hand. Varieties of cabbage, cauliflower, lettuce, peas, radish, onions, beans and cucurbitaceous vegetables were sown.

From the date of establishment until March 31st, 1933, 16,000 seedlings were issued from the station, and two and a quarter tons of potatoes were sold.

121. During the ensuing year with increased financial provision, the levelling and canalization of the North Eastern part of the section is envisaged. It is hoped to have the whole area under rotational cultivation by the coming winter.

The expenditure for the year was as follows:—

Capital:			
	Fencing	£P.100	
	Compensation	100	£P.200.
Recurrent:	Labour	110.	
	Purchase of manure & Fert.	24.270	
	Repairs to tools & implements	5.495	
	Purchase of seed	1.260	
	Transport of produce	3.190	£P.144.215

MAJDAL AGRICULTURAL STATION :

122. The establishment of this station in 1932 filled a long felt want in Southern Palestine.

Situated as it is, in an area with a precarious rainfall, it is essentially a dry farming station.

123. The work carried out during the early part of the year was purely preparatory.

The land having been continually cropped, and being most probably in a poor state of fertility, was put under leguminous crops, after having been tractor ploughed in the summer of 1932 and given frequent after cultivation.

The crops were reaped and the stubbles grazed to give a uniformity to the soil for the 1933 sowing season.

During the summer further cultivation was given the land, the fine crops now standing being indicative of the dual treatment.

124. The cropping plan for 1933 includes 160 dunams under wheat, 84 dunams under barley, 9 dunams under cereal variety tests, and 101 dunams under leguminous crops.

125. An area of three dunams is set aside for acclimatization and experimental work with vegetables and production of seed and seedlings for distribution.

126. Varietal tests with forage crops, roots and grasses have been undertaken at the station and give every prospect of success.

127. At the date to which this report is brought, there is every hope that a heavy yield of both cereal, leguminous and miscellaneous crops will be realized.

It is expected that 11 tons of wheat, 8 tons of barley and 5 tons of legumes will be available for distribution.

128. The expenditure for the year under review as follows:—

Labour	£P.207.691
Purchase of manures and fertilizers	81.725
Fuel for Engine and Tractor	138.308
Repairs to implements	56.047
Purchase of tools and implements	97,835
Purchase of seed	17.589
Transport	0.805
	£P.600.000

FARRADIYEH AGRICULTURAL STATION :

129. The agricultural section of the station is situated some 2 kilometers from the main buildings, in the lands of Kefr Anan village.

The area of 150 dunams acquired in 1932, was covered with low bush, and littered with a large amount of stone, both loose and in outcrops. The 1933 crop was thereofore sown on practically virgin soil.

130. Notwithstanding the adverse climatic conditions obtaining the winter cereal crops, especially those late sown, gave to average good yields.

131. Leguminous crops were adversely affected by prevailing conditions and were not up to standard.

	Kind.	Area in dunams	Total yield in kgs.	Yield per dun. in kgs.
Wheat :	Haurani	10	783	78.3
	Jaljuli	5	253	50.6
	Nursi	12	881	73.4
Barley :	Hirawi	7	1024	146.
	"4000"	3	142	47.
	Abyssinian 20	2	36	18.
Oats :	Red Texas	3	395	131.6
Kersenneh:	Baladi selected	10	796	79.6
Vetch :	Baladi selected	5	363	72.2
Beans :	Improved baladi	10	151	15.1
Lentils :	Baladi selected	7.5	283	37.7
	Large round	7.5	303	40.4
Chick Peas	Improved baladi	10.	433	43.3

132. After having deducted the requirements for sowing in the autumn of 1933, this small station was able to supply graded and cleaned seed as under — no mean achievement :—

Wheat	1,708 Kgs.
Barley	1,000 „
Oats	350 „
Kersenneh	640 „
Vetch	288 „
Beans	151 „
Lentils	500 „
Chick peas	300 „

133. The yield of the summer crops at the station was in keeping with the rest of the country, very poor results being harvested.

Kind.	Area in dunams	Yield in kgs.
Sesame	20	220
Maize	5	50
Dura	5	74
Chick peas	15	440

134. A small area is annually set aside for varietal work. The same system of rotation as with the station main crops is adopted.

The undermentioned varieties were sown on areas of 200 square meters. The varied yields hardly give a true value of the varieties as regards their suitability for the districts, owing to the virgin soil and adverse climatic conditions.

The outstanding variety was Mavrokritharon, a wheat lately imported from Cyprus.

Variety.	Yield per plot in kgs.	Yield per dun. in kgs.
Jaljuli	12.3	61.5
Moughrabi	12.	60.
Haurani	13.5	67.5
Nursi	13.5	67.5
Mavrokritharon	18.	90.
Kyperounda	13.5	67.5
Durum Caliph	13.	65.
C.C.C. 2707	10.80	54.
Golden Ball	9.25	46.25
B.I.X.P.M.	8.	40.
Rieti	5.5	27.5

135. In the barley section most of the varieties gave fine yields. The plots were sown "afir". Owing to the lack of rain during December, the germination was so indifferent that the plots were re-sown on January 29th. The results are indicative of the benefit derived from late sowing in this district.

Variety.	Yield per plot. Kgs.	Yield per dunam Kgs.	
Cape	20.5	102.5	
Coast	20.	100.	
"4000"	24.	120.	
Hirawi	25.	125.	
Mariuti	21.	105.	
Paphos	3.	15.	destroyed.
Abyssinian	31.7	158.5	
Nebawi	24.	120.	
Mavrokritharon	11.	55	Rocky land.
Sinai	12.5	62.5	

136. The 1933/34 cropping plan for the station includes thirty seven and a half dunams under wheat, fifteen dunams under barley, four dunams under oats and ten dunams under varieties in the cereal section.

Wheat:	Jaljuli	15 dunams
	Haurani	10 "
	Nursi	10 "
	Local varieties	$2^1/_2$ "
Barley:	Hirawi	10 "
	"4000"	5 "
Oats:	Red Texas	4 "
	Varieties	10 "

137. The leguminous and forage crops account for a further sixty seven dunams.

Varietal plots	10	dunams
Beans	12	"
Berseem	3	"
Kersenneh	12	"
Lentils	16	"
Vetch	7	"
Oats and Vetch	7	"

138. Included in the variety section are fifteen types of grasses. Tall Oat grass, Wimmera Rye grass, Perrennial Rye grass, Sheeps Burnet, Cocksfoot, Toowoomba Canary grass, Wallaby grass, Italian Rye grass, Subterranean Clover, Rare Blue grass, Giant Panic, Paspalum Dilitatum, Coolah grass, Phalaris Bulbosa, and Rhodes grass.

139. The summer crops comprising maize, dura and chick peas will be sown on an area of sixty five dunams.

Among the maize varieties are twelve imported varieties from South Africa including three of a most drought resistant type.

140. At the date to which this report alludes, there is every prospect of heavy yields of cereals, and leguminous, and miscellaneous crops being harvested.

141. The expenditure for the year under review was as follows:—

Labour	£P.166.175
Purchase of Materials	15.688
Purchase of seed	2.533
Purchase of hand tools & small implements	39.160
Purchase of manures & fertilizers	62.045
Total	£P.285.601

An increased budgetary provision for 1934/35 will permit of more extensive work being carried out, and assure the removal of rock outcrops permitting the use of agricultural implements.

RESEARCH AND INVESTIGATION:

THE INTRODUCTION OF NEW CROPS:

142. The conservative nature of the Palestinian farmer makes the introduction of new types of crops into his normal rotation difficult.

The absence of a firm and steady market does not tend to lessen that difficulty.

It seemed assured that linseed when introduced a few years ago would become a staple crop of the country.

The area cultivated has dropped from 11,182 dunams in 1930/31 to 400 dunams in 1933.

143. At agricultural stations in addition to the extensive and systematic work in hand with cereal and leguminous field crops, attention has been paid to the introduction of various forage crops and grasses.

At the various stations the following introductions have been made:—

Wheats	62	varieties	(including 8 local varieties)
Barleys	31	"	(including 8 local varieties)
Oats	13	"	
Maize	12	"	
Vetch	4	"	
Beans	6	"	
Forage crops include			
Kale	3	varieties	These have shown remarkably forward growth both under irrigation and dry farming.

LUCERNE:

144. Fifteen varieties are being tested under irrigation and dry farming conditions.

New introductions include two Italian and eight Australian varieties.

GROUND NUTS:

145. A variety from Central Africa is under trial at Majdal, Acre and Sarafand Stations.

JERUSALEM ARTICHOKES:

146. Two imported varieties have been planted at Majdal Station and show prospects of good yields.

CASSAVA:

147. Cuttings introduced from Central Africa failed to take root at Jericho, Majdal and Beisan.

TOMATOES:

148. While the tomato can hardly be said to have been introduced to the country by this department, many new varieties have.

It is especially pleasing to note how well the imported varieties have grown. Heavy yields from twelve varieties are expected from test plots at agricultural stations.

POTATOES:

149. The above remarks on tomatoes similarly apply to potatoes.

Results from the imported English, Scotch and Irish and in some instances Dutch varieties have completely outclassed crops grown from Cyprus second year English seed.

GRASSES, FODDER PLANTS AND SHRUBS.

150. About sixty to seventy varieties are under trial at Agricultural Stations.

They have been sown both under light irrigation for seed production, and in comparatively large quantities under dry cultivation.

It is premature to definitely state which varieties will prove suitable for the country Many have shown satisfactory growth, some have failed to germinate.

COMMON NAME	BOTANICAL NAME	ORIGIN
Perennial Rye Grass	Lolium Perenne	England
Short Seeded Rye Grass	Lolium Perenne (Var Pace)	,,
Tall Fescue	Festuca Arundinacea	,,
Medow Fescue	Festuca Ovina	,,
Fine leaved Fescue	Festuca Tenuifolia	,,
Italian Rye grass	Lolium Multiflorum	,,
Crested Dogs Tail	Cyanosorus Cristatus	,,
Crested wheat grass	Agropyron Cistatum	,,
Hard Fescue	Festuca Duriuscula	,,
Tall Oat Grass	Avena Elatior	,,
Molasses Grass	Melinis Minutiflora	America
ATRIPLEX VARIETIES		
Bladder Salt Bush	Atriplex Vescicaria	Australia
Old man salt bush	Atriplix Nummularia	,,
Dwarf salt bush	,, Halimoides	,,
Crown Salt Bush	,, Angulata	,,
Creeping Salt Bush	,, Semibaccatum	,,
Small seeded salt bush	,, Leptocarpum	,,
SHRUBS		
Tagasaste	Cystisus Proliferus	Australia
Mulga	Acacia Anuera	,,
Tree lucerne	Medicago Arborea	,,
Sheeps Burnet	Proterium Sanguisorba	,,
LEGUMINOUS PLANTS		
Lespedezea Sericea	(Lespedeza)	America
Alsike clover	Trifolium Hybridum	England
Crimson Clover	Trifolium Incarnatum	,,
Trefoil (white)	Trifolium repens	,,
Subterranean Clover	Trifolium Subterraneum	Australia
Trefoil Yellow	Medicago Lupulina	England
Hubam Clover	Melilotus Alba annua	,,
Bokhara Clover	Melilotus Alba	,,
English Vetch	Vicia Sativa	,,
Sulla	Hedysarium Coronarium	,,
Purple Vetch	Trifolium pratense	,,
Ochrus Vetch	Lathyrus ochrus	,,
LUCERNES		
Hunter River	Medicago Sativa	Australia
Coolah grown		,,
Delungra grown		,,
Tamworth grown		,,
Lachlan Valley grown		,,
Baerami grown		,,
Hardy		Europe
Poitou		,,
Grimm		,,
Hairy Peruvian		,,
Italian Pratense		,,
Italian Fratelli		,,
Provence		,,
Smooth Peruvian		,,
Turkestan		,,

GRASSES BROUGHT FROM AUSTRALIA

Perennial Rye Grass	Lolium Perenne
Tall Fescue Grass	Festuca Arundinacea
Paspalum Grass	Paspalum dilitatum
Italian Rye Grass	Lolium Italicum
Texas Grass	Panicum Bulbosum
x Queensland blue grass	Andropogon Sericeus
Coolah grass	Panicum Prolutum
Weeping love grass	Eragrostis Curvula
White top Wallaby grass	Danthonia Semianularis
x Toowoomba Canary grass	Philaris Tuberosa
x Brown top or sugar grass	Erianthus Fulvus
Rare blue grass	Andropogon intermedius
Warrego Summer grass	Paspalidium Retiglume
x Rhodes grass	Chloris Gyana
Sudan grass	Andropogon Sorghum
Cocksfoot grass	Dactylis Glomerata
x Wimmera Rye Grass	Lolium Rigidum
Giant Panic grass	Panicum Antidotale
Rhodesian Buffel grass	Panicum Maximum
Tall Oat grass	Avena Elatior
Sheeps Burnet	Proterium Sanguisorba
Tagasaste	Cystisus proliferus
Mulga	Acacia anuera

In addition to the above; selected strains of these varieties marked 'x' were brought from the Waite Research Institute, South Australia, and from the Agrostological Section of the Department of Agriculture of New South Wales.

METEOROLOGICAL REVIEW:

151. No necessity has arisen to increase the number of official meteorological stations in the country.

Nine are established at Acre, Haifa, Jenin, Tel-Aviv, Jericho, Gaza, Beersheba, Beisan and Jerusalem.

Records from the station at the Beit Gemal agricultural school, a private station, are regularly received.

The observers daily submit results of rainfall, humidity, evaporation, air temperature, barometric pressure. and wind velocity and direction, to the Meteorological service of Egypt which in unofficially in supervision of this service. Rainfall records are received daily from a further 42 unofficial stations.

GENERAL AGRICULTURAL COUNCIL:

THE COMMITTEE ON AGRONOMY:

152. Due to the Secretary being out of the country during the year, only two meetings of this committee were held.

Through the recommendation of the members there has been considerable extension in the work of improvement of seed and elimination of noxious weed seeds by means of portable grading and cleaning machines being loaned to villagers.

At the suggestion of members of the committee, extension work with regard to demonstration in villages, the issue of imported vegetable seed, the expansion of potato cultivation and increase of the tariff on imports has been given effect.

Valuable assistance has been given by individual members of the committee in personally undertaking demonstrational and extension work.

G. G. MASSON
Chief Agricultural Officer

STATEMENT OF RAINFALL FOR SEASON JUNE 1933 TO MAY 1934 AS COMPARED WITH AVERAGE RAINFALL.

Station	June to Sept. 1933	October 1933	November 1933	December 1933	January 1934	February 1934	March 1934	April 1934	May 1934	Total for Season	Average Seasonal Rainfall	
											No. of Seasons	Mms.
OFFICIAL STATIONS:												
Acre	11.0	24.0	7.0	36.5	158.0	209.5	20.0	4.0	10.0	480.0	9	565.5
Haifa	4.3	9.8	9.6	67.3	230.3	236.0	8.6	15.4	6.6	589.9	22	622.3
Jenin	—	16.6	5.7	52.0	139.7	139.9	4.9	15.0	3.8	377.6	13	476.1
Tel-Aviv	9.2	3.0	7.6	48.2	164.6	152.0	9.7	10.7	0.5	405.5	29	524.9
Jerusalem	—	2.5	14.5	17.3	229.1	93.6	6.5	28.2	—	391.7	86	638.1
Jericho	—	—	3.5	3.5	65.0	12.0	4.0	4.5	0.5	93.0	11	113.2
Gaza	drops	—	39.1	84.4	192.1	57.1	10.6	9.9	3.9	397.1	23	373.6
Beersheba	—	—	30.0	29.0	195.1	70.2	12.0	—	—	336.3	13	188.9
Beisan	—	0.5	1.5	37.3	89.5	53.5	8.5	16.0	4.7	211.5	8	261.3
Beit Gemal	0.2	0.4	18.1	34.5	206.9	72.9	12.1	15.9	—	361.0	15	431.8
NON-OFFICIAL STATIONS:												
Metullah	—	—	18.2	89.0	191.5	250.5	42.0	10.5	62.0	663.7	1	663.7
Ras en Naqura	—	—	24.5	52.0	108.0	180.0	23.0	7.0	88.0	482.5	1	482.5
Bouweizie	—	—	4.0	51.0	114.5	219.0	18.0	10.0	21.0	437.5	1	437.5
Jisr Banat Yacub	—	—	3.0	50.0	94.0	146.0	10.0	6.0	12.0	312.0	1	312.0
Safad	24.1	32.8	5.3	70.6	196.1	255.3	13.0	18.6	17.9	633.7	11	749.4
Farradiya	9.0	32.0	2.0	74.5	191.5	267.5	16.5	22.0	16.0	631.0	1	631.0
Tiberias	—	4.5	45.0	23.0	110.0	127.0	5.5	10.0	66.0	351.0	30	424.2
Samakh	—	—	15.0	21.5	89.0	79.5	5.0	24.5	6.0	240.5	1	240.5
Manawat	—	—	—	76.5	135.0	234.5	17.5	13.0	76.0	552.5	1	552.5
Nazareth	6.0	10.0	24.5	94.0	169.0	204.5	8.0	13.0	14.0	543.0	28	610.7
Gebeta	—	3.5	5.0	73.0	181.5	148.5	18.0	7.0	1.0	437.5	7	449.6
Affuleh	—	—	—	54.5	153.0	142.0	12.5	5.0	0.5	367.5	1	367.5
Jisr Sheikh Hussein	—	—	—	35.0	121.0	85.5	—	5.0	5.5	252.0	1	252.0
Athlit	8.0	11.0	—	81.0	138.0	138.0	4.5	20.0	4.0	404.5	6	472.8
Zikhron Ya'aqov	—	8.0	5.5	73.5	193.5	361.5	—	7.0	—	649.0	6	604.6
Nablus	—	3.0	22.0	52.1	197.5	167.7	—	19.0	8.0	469.3	12	586.5
Tulkarm	3.4	7.5	3.5	41.0	156.1	166.1	0.7	14.0	4.0	396.3	12	520.6
Jisr Damyeh	—	—	27.0	6.0	65.5	29.0	—	—	12.0	139.5	1	139.5
Kalmania	4.5	1.5	8.5	54.0	156.0	135.5	7.0	5.5	1.0	373.5	5	416.3
Wilhelma	22.0	4.0	5.2	53.5	197.6	84.6	16.0	11.5	1.5	395.9	9	463.6
Bir Zeit	—	—	21.0	65.0	254.0	130.0	18.0	29.0	—	517.0	8	628.8
Ben Shemen	8.8	10.0	6.8	65.3	167.8	80.0	9.7	12.7	0.2	361.4	14	455.2
Rafat	—	—	22.0	43.7	185.0	69.5	11.0	6.0	—	337.2	1	337.2
Ramleh	—	17.7	8.5	70.2	172.0	113.7	26.5	8.9	0.2	417.7	7	414.5
Bab el wad	—	—	13.0	67.0	198.0	90.0	11.0	17.5	—	396.5	5	409.7
Kiryat Anavim	—	1.0	20.7	56.8	269.5	111.5	15.5	22.9	—	497.9	5	496.3
Jaffa	17.0	3.0	4.5	43.5	165.5	118.0	8.0	6.0	drops	365.5	8	441.1
Miqveh Yisrael	46.7	8.6	5.2	59.0	194.6	112.3	16.0	5.4	1.0	448.8	37	537.0
Kfar Saba	—	—	1.0	82.4	191.2	144.2	9.4	5.0	1.0	434.2	1	434.2
Sarona	11.0	2.5	0.5	60.0	154.5	150.5	8.5	15.5	1.0	404.0	20	534.1
Herzlia	3.0	4.0	2.7	82.0	274.6	269.0	17.5	4.5	—	657.3	5	498.7
Ramat Hasharon	drops	1.7	6.9	55.7	150.1	148.2	15.4	8.5	1.8	388.3	1	388.3
Rishon	14.0	10.0	8.0	70.0	221.0	120.0	16.0	7.0	—	466.0	9	512.2
Ekron	drops	3.0	10.0	75.0	173.0	97.0	17.0	14.0	—	389.0	9	406.9
Gedera	—	—	16.0	78.5	164.5	66.0	10.7	4.2	—	339.9	4	387.8
Hebron	—	—	46.1	18.8	256.9	86.5	3.5	17.0	—	428.8	23	539.7
Majdal Village	drops	—	4.0	81.5	110.0	47.0	5.0	8.0	—	255.5	8	310.7
Majdal Agricultural Station	4.0	2.0	17.0	90.0	140.0	77.0	5.0	11.0	2.0	348.0	2	298.0
Khan Yunes	—	—	28.0	64.0	98.5	49.0	3.0	19.0	—	261.5	1	261.5
Khan el Ahmar	—	—	2.0	0.5	84.5	14.0	4.0	5.0	—	110.0	2	99.7
Allenby Bridge	—	—	3.0	57.0	—	7.5	2.5	2.0	—	72.0	1	72.0
Tel-Or	—	9.1	3.3	18.8	104.6	90.5	8.5	34.5	1.5	270.8	6	340.6
Dead Sea Post	—	—	1.5	3.0	25.2	2.0	drops	—	—	31.7	6	59.6

GOVERNMENT OF PALESTINE

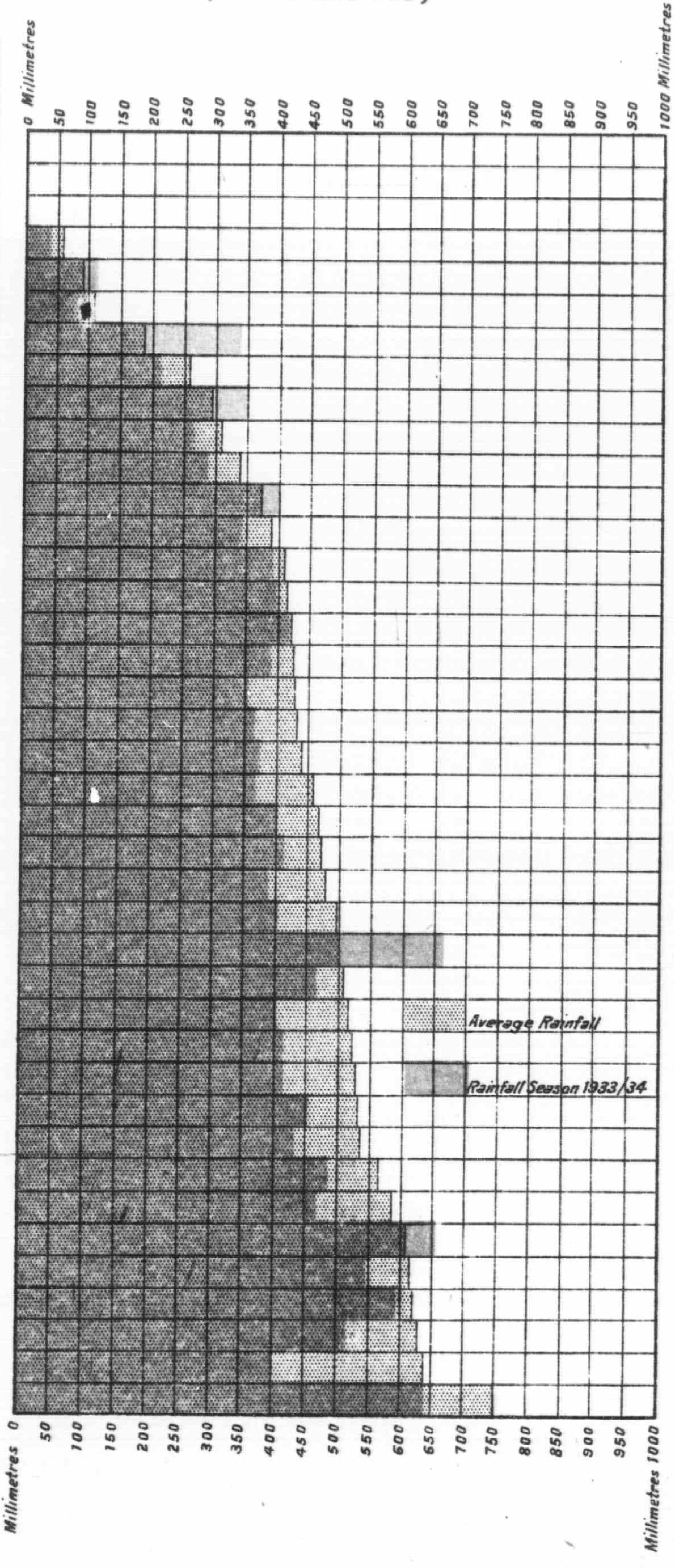
DEPARTMENT OF AGRICULTURE & FORESTS

GRAPHIC PRESENTATION OF RAINFALL FOR THE SEASON: JUNE 1933 TO MAY 1934 AS COMPARED WITH AVERAGE RAINFALL

(In Millimetres)

Average Rainfall

Station	No. of Seasons	Millimetres
Dead Sea Post	6	59·6
Khān el Ahmar	2	99·7
Jericho	11	113·2
Beersheba	13	188·9
Beisān	8	261·3
Majdal Station	2	298·0
El Majdal	8	310·7
Tel-Or	6	340·6
Gaza	23	373·6
Gederá	4	387·8
Eqrón	9	406·9
Bāb el Wād	5	409·7
Er Ramle	7	414·5
Qalmania	5	416·3
Tiberias	30	424·2
Beit Jimāl	15	431·8
Jaffa	8	441·1
Ben Shémen	14	455·2
Wilhelma	9	463·6
'Athlīt	6	472·8
Jenīn	13	476·1
Kiryát 'Anavim	5	496·3
Herzlia	5	498.7
Rishón le Tsiyón	9	512·2
Tūlkarm	12	520·6
Tel-Aviv	29	524·9
Sarona	20	534·1
Miqvé Yisraél	37	537.0
Hebron	23	539·7
Acre	9	565·5
Nāblus	12	586·5
Zikhrón Ya'aqóv	6	604·6
Nazareth	28	610·7
Haifa	22	622.3
Bīr Zeit	8	628.8
Jerusalem	86	638·1
Safad	11	749.4



Rainfall Season 1933/34

Station	Millimetres
Dead Sea Post	31·7
Khān el Ahmar	110.0
Jericho	93·0
Beersheba	336·3
Beisān	211·5
Majdal Station	348·0
El Majdal	255·5
Tel-Or	270·8
Gaza	397·1
Gederá	339·9
Eqrón	389·0
Bāb el Wād	396·5
Er Ramle	417·7
Qalmania	373·5
Tiberias	351·0
Beit Jimāl	361·0
Jaffa	365·5
Ben Shémen	361·4
Wilhelma	395·9
'Athlīt	404·5
Jenīn	377·6
Kiryát 'Anavim	397·9
Herzlia	657·3
Rishón le Tsiyón	466·0
Tūlkarm	396·3
Tel-Aviv	405·5
Sarona	404·0
Miqvé Yisraél	448·8
Hebrón	428·8
Acre	480·0
Nāblus	469·3
Zikhrón Ya'aqóv	649·0
Nazareth	543·0
Haifa	589·9
Bīr Zeit	517·0
Jerusalem	391.7
Safad	633·7

Survey of Palestine 1934

SUMMARY OF METEOROLO

27113—1000—G.C.P.

φ = 31° 47′ N. λ = 35° 13′ East of Greenwich. H =

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)			
	(m.b.)	Standard (mm.) 8 h.	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean
1933																
January ...		698.23	6.4			8.4	12.4	4.5	18.4	23	-0.2	7	83			
February		95.79	8.9			—	—	5.9	—	—	2.3	4	74			
March ...		95.74	10.8			(14.1	21.6)	6.6	(28.0	28)	1.1	5	60			
April		95.48	13.1			15.4	23.2	7.5	36.8	24	2.2	16	53			
May		95.61	19.5			—	—	13.1	—	—	8.6	9	44			
June		94.89	23.2			22.6	29.8	15.5	40.0	9	9.6	7	34			
July		94.31	22.5			22.5	29.1	15.9	32.3	7	12.8	6	48			
August ...		94.30	22.4			23.0	29.8	16.2	33.1	22	13.0	29	54			
September		95.83	20.4			21.2	27.4	15.0	31.5	22	11.2	30	60			
October ...		—	18.4			18.6	24.9	12.3	29.4	29,30	8.2	26	56			
November		—	18.3			(18.8)	(24.7)	13.0	(31.3	15)	5.5	24	40			
December		—	9.7			(11.6	16.6)	6.5	(22.8	20)	-3.0	27	68			
YEAR ...		—	16.1			—	—	11.0	—	—	—	—	56			

SUMMARY OF METEOROLO

27113—1000—G.C.P.

φ = 31° 43′ N. λ = 34° 59′ East of Greenwich. H = 320

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)			
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean
1933																
January ...			(10.0)	14.8	10.8	(11.0)	16.0	(8.2)	26.2	23	(3.8	7)	(80)	60	76	(78)
February			12.1	17.3	12.1	12.8	18.4	9.8	26.2	18	6.5	6,7	74	55	75	74
March ...			(13.1)	19.0	11.9	(13.4)	20.7	(9.4)	31.4	1	(5.3	5)	(71)	49	80	(76)
April			15.6	20.2	13.3	14.8	21.8	10.3	33.4	30	7.0	15,16	64	52	81	72
May			21.8	27.5	19.0	21.0	29.4	15.7	38.2	10	11.6	9	51	37	64	58
June			(25.2)	30.6	22.2	(23.9)	32.3	17.7	44.9	13	13.5	4	(48)	38	64	(56)
July			24.4	30.0	22.7	24.0	31.4	18.8	35.0	7	16.2	3	66	51	77	72
August ...			24.7	30.3	23.1	24.4	31.8	19.3	34.3	13	17.8	3,29	73	57	84	78
September			23.3	28.2	21.0	22.6	29.8	18.1	33.7	23	16.0	29	74	61	89	82
October ...			21.8	26.4	19.6	21.2	27.9	16.8	34.2	31	13.3	26	61	27	74	68
November			22.4	27.2	19.8	21.8	29.2	17.8	36.8	15	10.5	23	40	40	58	49
December			13.9	18.3	14.0	14.3	19.4	11.1	26.8	20	3.5	28	55	47	64	60
YEAR ...			19.0	24.2	17.5	18.8	25.7	14.4	—	—	—	—	63	48	74	69

Y OF METEOROLOGICAL OBSERVATIONS AT JERUSALEM FOR THE YEAR 1933

reenwich. H = 757.5 metres h_t = 1.5 metres h_r = 1.0 metres C_h = + 63.9 mm.=

elative Humidity (°/₀)				Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Number o	
h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.		
													Amount	Date	of rain		Scale 0—12	N	NE
3				5.9				4.9				86.6	18.0	5	14	13	1.2	1	0
4				6.3				4.3				60.8	18.8	5	7	7	1.5	0	0
0				5.8				4.2				34.9	20.0	11	5	5	1.8	1.5	0
3				6.0				3.7				25.1	8.8	3	7	7	1.7	0.5	0
4				7.3				1.8				1.0	1.0	29	1	1	1.2	0	0
4				7.3				0.3				0.0	0.0	—	0	0	1.3	1.5	2
8				9.7				0.6				0.0	0.0	—	0	0	1.4	1	0.5
4				11.0				0.8				0.0	0.0	—	0	0	1.1	1.5	0
0				10.7				1.6				Drops	Drops	29	0	0	1.3	3	0
6				8.8				1.6				2.5	2.5	22	1	1	1.0	2	2.5
0				6.3				2.0				14.5	10.0	29	3	3	0.7	1	0
8				6.1				4.8				17.3	8.0	23	4	4	0.7	0	0
6				7.6				2.6				242.7	—	—	42	41	1.2	13	5

Y OF METEOROLOGICAL OBSERVATIONS AT BEIT GAMAL FOR THE YEAR 1933

wich. H = 320 metres.

Relative Humidity (°/₀)				Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Number	
h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm,	Mean of day		
													Amount	Date	of rain		Scale 0—12	N	NE
30)	60	76	(78)	(7.3)	7.5	7.4	(7.4)	6.1	5.4	4.8	5.4	98.0	23.8	6	12	12	2.1	7	3
74	55	75	74	7.8	8.2	7.9	8.0	5.2	5.1	2.3	4.2	56.4	15.2	6,8	7	7	1.4	11	3
71)	49	80	(76)	(7.9)	8.1	8.3	(8.1)	5.2	4.6	2.3	4.0	45.3	27.0	12	7	7	1.9	14	0
54	52	81	72	8.5	9.1	9.2	8.9	4.2	4.3	2.4	3.6	38.8	21.1	3	7	7	1.3	13	0
1	37	64	58	10.0	10.0	10.5	10.2	3.6	3.7	1.2	2.8	1.3	1.3	30	1	1	1.2	20	0
8)	38	64	(56)	(11.4)	12.4	12.6	(12.1)	1.0	0.8	1.1	1.0	0.0	0.0	—	0	0	1.1	3	1
6	51	77	72	14.9	16.0	15.7	15.5	2.3	0.3	0.3	1.0	0.0	0.0	—	0	0	0.9	10	0
3	57	84	78	16.9	18.3	17.6	17.6	2 9	1.0	·0.1	1.3	0.0	0.0	—	0	0	0.5	5	5
4	61	89	82	15.7	17.3	16.4	16.5	3.5	1.8	1.5	2.3	0.2	0.2	29	1	0	0.8	11	3
1	27	74	68	11.8	12.0	12.5	12.1	2.3	3.5	0.4	2.1	0.4	0.4	22	1	0	1.2	10	13
0	40	58	49	7.9	10.7	10.1	9.6	3.8	3.6	1.4	2.9	18.1	11.2	29	2	2	1.4	1	3
5	47	64	60	6.4	7.3	7.6	7.1	5.4	5.4	4.2	5.0	34.5	22.3	24	3	2	1.8	6	2
[illegible]	48	74	69	10.5	11.4	11.3	11.1	3.8	3.3	1.8	3.0	293.0	—	—	41	38	1.3	111	33

AT JERUSALEM FOR THE YEAR 1933

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

$h_t = 1.5$ metres $h_r = 1.0$ metres $C_h = + 63.9$ mm.=

ud Amount (0—10)			Rainfall (mm.)			Days with		Wind										Evaporation
								Force	Direction									mm. per day
14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.	Number of Observations in which the Wind-Direction was recorded as									
				Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
			86.6	18.0	5	14	13	1.2	1	0	6	2	0	5	4	3	10	1.68
			60.8	18.8	5	7	7	1.5	0	0	3.5	3.5	1	0	7	8	5	2.44
			34.9	20.0	11	5	5	1.8	1.5	0	3.5	2.5	0.5	2	7.5	8.5	5	3.79
			25.1	8.8	3	7	7	1.7	0.5	0	4	3	0	2	12	5.5	3	4.79
			1.0	1.0	29	1	1	1.2	0	0	1.5	7	0.5	1.5	11	3.5	6	6.79
			0.0	0.0	—	0	0	1.3	1.5	2	1	3	1	0	11	5.5	5	9.24
			0.0	0.0	—	0	0	1.4	1	0.5	0	2	0	3	17	6.5	1	7.75
			0.0	0.0	—	0	0	1.1	1.5	0	0	0	0	1.5	14.5	6.5	7	6.40
			Drops	Drops	29	0	0	1.3	3	0	1	1	1	0	7	15	2	4.74
			2.5	2.5	22	1	1	1.0	2	2.5	1.5	1	0	1	4	12	7	4.44
			14.5	10.0	29	3	3	0.7	1	0	4	3	0	1	4	1	15	6.21
			17.3	8.0	23	4	4	0.7	0	0	4	1	0	1	10	1	14	3.12
			242.7	—	—	42	41	1.2	13	5	30	29	4	18	109	76	80	5.12

T BEIT GAMAL FOR THE YEAR 1933

GOVERNMENT OF PALESTINE
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d Amount (0—10)			Rainfall (mm.)			Days with		Wind										Evaporation
								Force	Direction									mm. per day
14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	Mean of day	Number of Observations in which the Wind-Direction was recorded as									
				Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
5.4	4.8	5.4	98.0	23.8	6	12	12	2.1	7	3	15	0	7	31	3	2	25	3.38
5.1	2.3	4.2	56.4	15.2	6,8	7	7	1.4	11	3	2	1	6	21	5	3	32	3.63
4.6	2.3	4.0	45.3	27.0	12	7	7	1.9	14	0	7	1	6	26	6	6	27	4.84
4.3	2.4	3.6	38.8	21.1	3	7	7	1.3	13	0	1	0	5	23	10	4	34	4.32
3.7	1.2	2.8	1.3	1.3	30	1	1	1.2	20	0	7	1	8	24	1	1	31	6.93
0.8	1.1	1.0	0.0	0.0	—	0	0	1.1	3	1	1	1	13	18	5	3	45	9.12
0.3	0.3	1.0	0.0	0.0	—	0	0	0.9	10	0	2	0	1	23	2	3	52	6.49
1.0	0.1	1.3	0.0	0.0	—	0	0	0.5	5	5	1	1	1	11	0	3	66	5.41
1.8	1.5	2.3	0.2	0.2	29	1	0	0.8	11	3	0	0	0	20	3	3	50	4.67
3.5	0.4	2.1	0.4	0.4	22	1	0	1.2	10	13	5	1	2	9	5	6	42	5.34
3.6	1.4	2.9	18.1	11.2	29	2	2	1.4	1	3	21	5	4	14	6	1	35	8.66
5.4	4.2	5.0	34.5	22.3	24	3	2	1.8	6	2	7	2	8	33	0	6	29	5.85
3.3	1.8	3.0	293.0	—	—	41	38	1.3	111	33	69	13	61	253	46	41	468	5.70

SUMMARY OF METEOROLOG

φ = 32° 4′ N. λ = 34° 46′ East of Greenwich. H = 34

27113—1000—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vapou
	(m.b.)	Standard (mm.) Mean	7 h.	14 h.	21 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	7 h.	14 h.	21 h.	Mean	7 h.
1933																	
January ...		769.53	9.7	16.3	12.4	12.7	16.9	8.6	23.5	23	4.4	7	72	56	68	65	—
February		66.53	11.0	18.1	14.6	14.6	18.8	9.7	28.0	18	7.2	9,10	74	54	69	66	—
March ...		66.35	13.0	19.3	15.3	15.7	20.2	10.7	28.3	1	5.2	5	65	46	66	59	—
April		66 17	14.5	19.6	16.4	16.7	20.4	11.8	24.6	20	8.6	18	77	53	68	66	—
May		63.89	19.9	23.3	20.0	20.8	24.5	16.6	32.8	15	13.0	5,6	70	62	74	69	—
June		61.67	23.5	26.7	23.0	24.0	28.1	19.4	37.6	13	16.0	7	69	65	78	71	14.7
July		60.56	24.5	27.9	24.5	25.4	28.9	20.9	30.3	26	18.5	6,17	79	70	83	77	18.0
August ...		60.31	24.1	28.9	25.3	25.9	29.6	21.6	30.2	Several Dates	19.6	29	83	70	84	79	18.5
September		62.91	21.6	27.7	23.7	24.2	27.9	20.0	29.2	6,12	17.6	30	82	69	81	77	15.7
October ...		66.69	18.2	25.6	21.1	21.5	26.2	17.0	33.5	28	13.0	27	83	70	79	77	12.9
November		67.99	16.1	24.2	19.3	19.7	24.6	14.2	32.3	17	8.3	24	73	66	76	72	9.9
December		69.35	11.8	19.0	14.4	14.9	19.2	10.6	24.0	19	3.8	27	78	64	77	73	8.1
YEAR ...		765.16	17.3	23.0	19.2	19.7	23.8	15.1	-	—	—	—	75	62	75	71	—

SUMMARY OF METEOROLOG

φ = 31° 51′ N. λ = 35° 27′ East of Greenwich. H = 250 met

27113—1000—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vapo
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.
1933																	
January ...			12.7	18.7	13.3	13.6	19.6	9.5	25.3	23	4.0	8	71	48	72	72	7.8
February			15.3	21.6	15.8	16.1	22.7	11.6	27.8	18	7.0	9	70	44	68	69	9.1
March ...			17.4	24.2	17.4	17.8	25.4	12.1	30.5	10	6.0	5	56	32	55	56	8.2
April			19.6	26.4	19.6	19.7	27.6	13.3	37.5	23	9.2	16	55	33	50	52	9.3
May			26.0	33.1	25.6	25.9	34.3	19.0	39.8	1	14.5	9	41	22	37	39	10.0
June			28.8	36.1	29.1	28.8	37.6	21.1	47.0	9	16 5	1	40	20	33	36	11.7
July			29.4	35.9	30.2	29.4	37.4	22.1	41.0	7	20.0	2,3,5	47	25	36	42	14.2
August ...			29.5	36.6	30.3	29.8	37.8	22.9	41.1	14	21.0	Several Dates	55	34	44	50	16.9
September			27.5	34.2	27.5	27.6	35.2	21.2	39.0	22	17.8	30	55	33	50	52	15.0
October ...			24.7	31.4	24.8	24.8	32.5	18.4	38.5	31	14.0	26,27	52	32	50	51	12.0
November			21.6	29.3	19.6	21.4	30.3	14.9	35.6	1	8.9	24	51	32	56	54	9.7
December			15.1	21.2	15.5	15.6	22.1	10.8	28.5	18	2.2	27	63	45	59	61	8.1
YEAR ...			22.3	29.1	22.4	22.5	30.2	16.4	—	—	—	—	55	33	51	53	11.0

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT TEL-AVIV FOR THE YEAR 1933

East of Greenwich. H = 34 metres h_t = 1.8 metres h_r = 1.2 metres C_h = + mm.=

Date	Relative Humidity (%) 7 h.	14 h.	21 h.	Mean	Vapour Pressure (mm.) 7 h.	14 h.	21 h.	Mean	Cloud Amount (0–10) 7 h.	14 h.	21 h.	Mean	Rainfall (mm.) Total mm.	Maximum 1 day Amount	Date	Days with ≥ 0·1 mm. of rain	≥ 1·0 mm.	Force Mean of day Scale 0–12	N
7	72	56	68	65	—	—	—	—	4.5	3.6	3.3	3.8	57.2	18.6	25	14	8	1.5	2
9,10	74	54	69	66	—	—	—	—	5.0	4.0	3.3	4.1	41.7	17.0	7	6	5	1.6	4
5	65	46	66	59	—	—	—	—	4.5	2.9	3.5	3.6	24.5	9.5	20	10	8	1.9	1
18	77	53	68	66	—	—	—	—	4.0	3.1	2.2	3.1	44.5	25.6	2	6	4	1.8	4
5,6	70	62	74	69	—	—	—	—	3.3	1.8	1.8	2.3	0.4	0.2	27,29	2	0	1.5	11
7	69	65	78	71	14.7	16.8	16.4	16.0	1.9	1.2	1.3	1.5	0.0	0.0	—	0	0	1.4	6
6,17	79	70	83	77	18.0	19.6	18.9	18.8	2.9	0.5	1.9	1.8	0.0	0.0	—	0	0	1.4	4
29	83	70	84	79	18.5	20.7	20.2	19.8	2.6	1.9	3.0	2.5	0.0	0.0	—	0	0	1.5	2
30	82	69	81	77	15.7	18.9	17.5	17.4	2.7	1.0	2.8	2.2	9.2	7.7	28	2	2	1.7	7
27	83	70	79	77	12.9	16.9	14.7	14.8	1.6	1.5	1.4	1.5	3.0	1.0	25	4	1	1.8	14
24	73	66	76	72	9.9	14.8	12.7	12.5	4.5	3.3	2.3	3.4	7.6	6.7	30	2	1	1.6	9
27	78	64	77	73	8.1	10.5	9.4	9.3	4.5	4.3	4.2	4.3	48.4	20.8	24	7	4	1.7	6
—	75	62	75	71	—	—	—	—	3.5	2.4	2.6	2.8	236.5	—	—	53	33	1.6	70

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT JERICHO FOR THE YEAR 1933

of Greenwich. H = 250 metres h_t = 1.5 metres.

Date	Relative Humidity (%) 8 h.	14 h.	20 h.	Mean	Vapour Pressure (mm.) 8 h.	14 h.	20 h.	Mean	Cloud Amount (0–10) 8 h.	14 h.	20 h.	Mean	Rainfall (mm.) Total mm.	Maximum 1 day Amount	Date	Days with ≥ 0·1 mm. of rain	≥ 1·0 mm.	Force Mean of day Scale 0–12	N
8	71	48	72	72	7.8	7.7	8.1	7.9	4.2	4.9	3.9	4.3	22.5	6.5	27	9	7	1.6	16
9	70	44	68	69	9.1	8.5	9.2	8.9	4.5	4.6	2.8	4.0	19.0	7.0	5	5	5	1.3	15
5	56	32	55	56	8.2	7.1	8.1	7.8	3.9	3.5	2.9	3.4	10.0	3.5	11	7	4	1.9	17
16	55	33	50	52	9.3	8.2	8.5	8.7	2.5	3.2	1.6	2.4	8.0	5.5	2	4	3	2.1	18
9	41	22	37	39	10.0	8.4	8.9	9.1	1.5	1.9	0.8	1.4	Drops	Drops	27	0	0	2.0	18
1	40	20	33	36	11.7	9.0	9.8	10.2	0.3	0.4	0.3	0.3	0.0	0.0	—	0	0	2.0	15
2,3,5	47	25	36	42	14.2	10.9	11.3	12.1	0.4	0.0	0.0	0.1	0.0	0.0	—	0	0	2.1	1
Several Dates	55	34	44	50	16.9	15.6	14.0	15.5	0.5	0.1	0.0	0.2	0.0	0.0	—	0	0	2.3	1
30	55	33	50	52	15.0	13.1	13.6	13.9	1.4	0.7	0.1	0.7	Drops	Drops	29	0	0	1.6	1
6,27	52	32	50	51	12.0	11.1	11.7	11.6	0.7	1.5	0.4	0.9	Drops	Drops	14	0	0	1.5	1
24	51	32	56	54	9.7	9.9	9.5	9.7	2.3	2.6	1.4	2.1	3.5	2.5	30	2	2	1.2	1
27	63	45	59	61	8.1	8.4	7.7	8.1	4.5	4.5	2.7	4.2	3.5	2.0	24	3	2	1.8	1
—	55	33	51	53	11.0	9.8	10.0	10.3	2.2	2.3	1.5	2.0	66.5	—	—	30	23	1.8	18

EL-AVIV FOR THE YEAR 1933

GOVERNMENT OF PALESTINE
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1.8 metres $h_r = 1.2$ metres $C_h = +$ mm.= m.b.

unt (0–10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									
21 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	Mean of day	Number of Observations in which the Wind-Direction was recorded as									mm. per day
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
3.3	3.8	57.2	18.6	25	14	8	1.5	2	5	13	20	18	5	12	14	4	—
3.3	4.1	41.7	17.0	7	6	5	1.6	4	7	6	22	9	7	8	16	5	—
3.5	3.6	24.5	9.5	20	10	8	1.9	1	6	13	15	3	8	13	27	7	—
2.2	3.1	44.5	25.6	2	6	4	1.8	4	5	8	6	5	9	12	29	12	3.21
1.8	2.3	0.4	0.2	27,29	2	0	1.5	11	8	1	9	6	3	13	26	16	3.42
1.3	1.5	0.0	0.0	—	0	0	1.4	6	5	1	14	13	6	16	15	14	3.64
1.9	1.8	0.0	0.0	—	0	0	1.4	4	2	3	1	23	6	20	16	18	3.06
3.0	2.5	0.0	0.0	—	0	0	1.5	2	0	1	15	21	1	15	22	16	2.79
2.8	2.2	9.2	7.7	28	2	2	1.7	7	4	4	10	9	8	11	24	13	2.95
1.4	1.5	3.0	1.0	25	4	1	1.8	14	6	5	14	16	1	8	17	12	2.85
2.3	3.4	7.6	6.7	30	2	1	1.6	9	13	2	23	6	4	9	18	6	2.89
4.2	4.3	48.4	20.8	24	7	4	1.7	6	9	10	24	18	8	6	10	2	2.32
2.6	2.8	236.5	—	—	53	33	1.6	70	70	67	173	147	66	143	234	125	—

ERICHO FOR THE YEAR 1933

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

.5 metres.

unt (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									
20 h.	Mean	Total mm.	Maximum 1 day		> 0·1 mm.	≥ 1·0 mm.	Mean of day	Number of Observations in which the Wind-Direction was recorded as									mm. per day
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
3.9	4.3	22.5	6.5	27	9	7	1.6	16.5	11.5	3.5	3.5	10.5	10.5	12.5	14.5	10	3.35
2.8	4.0	19.0	7.0	5	5	5	1.3	15.5	13.5	3	2.5	8.5	9	8.5	7.5	16	4.02
2.9	3.4	10.0	3.5	11	7	4	1.9	17	12.5	5.5	3	6	6	12.5	21.5	9	6.90
1.6	2.4	8.0	5.5	2	4	3	2.1	18.5	16.5	6	7	9.5	4	7.5	15	6	7.41
0.8	1.4	Drops	Drops	27	0	0	2.0	18	22.5	4	8.5	14.5	4	9	7.5	5	10.25
0.3	0.3	0.0	0.0	—	0	0	2.0	15	10	3	18	12	4	7.5	10.5	10	11.71
0.0	0.1	0.0	0.0	—	0	0	2.1	10.5	17.5	1.5	17.5	13.5	8	2.5	15	7	10.54
0.0	0.2	0.0	0.0	—	0	0	2.3	11.5	22	3	18.5	10	5.5	2	11.5	9	8.81
0.1	0.7	Drops	Drops	29	0	0	1.6	12	17.5	10.5	9.5	10	5.5	3	12	10	7.34
0.4	0.9	Drops	Drops	14	0	0	1.5	19	20	10.5	12	10	2	1.5	9	9	6.41
1.4	2.1	3.5	2.5	30	2	2	1.2	13	5	2	11	8.5	12	8	16.5	14	6.14
2.7	4.2	3.5	2.0	24	3	2	1.8	19.5	15.5	1.5	6.5	6	5	15	17	7	4.17
1.5	2.0	66.5	—	—	30	23	1.8	186	184	54	117.5	119	75.5	89.5	157.5	112	7.25

SUMMARY OF METEOROL

φ = 32° 55′ N. λ = 35° 4′ East of Greenwich. H = 18.7 m

27113—1000—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vap
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.
1933																	
January ...			11.6	16.6	12.0	12.0	17.8	8.0	22.8	23	1.6	8	69	53	62	66	7.0
February			13.9	18.6	14.2	13.9	19.5	8.9	26.4	18	4.6	4	70	51	63	66	8.3
March ...			15.6	18.9	15.1	14.6	20.5	9.0	27.2	1	2.4	16	60	54	59	60	7.9
April			17.6	19.5	15.4	15.5	21.1	9.5	31.0	24	4.3	17	61	56	69	65	9.0
May			22.3	24.7	19.4	20.0	25.8	13.8	36.1	10	8.0	1	55	49	71	63	11.1
June			25.9	27.0	22.3	23.2	28.5	17.5	42.0	9	12.6	7	52	54	72	62	12.8
July			26.7	28.1	24.4	24.8	28.9	20.2	30.0	7	16.9	17	63	59	74	68	16.2
August ...			27.5	29.3	25.5	25.6	29.9	20.2	31.1	1	17.5	19,27	65	61	73	69	17.7
September			26.3	27.9	(23.8)	(24.2)	28.5	(18.7)	29.8	11	(17.0	25)	59	58	(67	63)	15.1
October ...			24.1	26.1	21.7	21.6	27.2	14.6	34.3	31	10.2	26	58	53	70	64	12.9
November			22.4	26.0	19.3	20.5	28.6	14.2	35.5	15	7.0	23	39	41	55	47	7.8
December			14.5	18.9	14.2	14.4	20.2	—	24.2	20	—	—	54	53	59	56	6.7
YEAR ...			20.7	23.5	18.9	19.2	24.7	—	—	—	—	–	59	54	66	62	11.0

SUMMARY OF METEOROL

φ = 32° 48′ N. λ = 34° 59′ East of Greenwich. H =

27113—1000—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vap
	(m.b.)	Standard (mm.) 8 h.	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.
1933																	
January ...		762.15	13.1	16.9		12.9	17.8	8.0	23.1	23	3.5	8	67	57			7.5
February		58.99	15.0	(18.6)		(15.0	19.6)	10.3	(24.0	18)	7.2	7	66	(59)			8.4
March ...		59.20	17.3	19.2		15.4	20.1	10.7	23.4	29	5.5	5	55	57			8.0
April		58.73	18.9	21.3		17.2	22.4	12.1	30.1	20	7.8	18	56	56			9.1
May		57.54	23.4	26.2		21.6	27.3	16.0	34.9	10	12.2	6	61	59			13.0
June		55.83	26.8	28.5		24.6	29.9	19.3	37.7	13	15.4	1,7	63	68			16.3
July		54.65	28.3	29.8		26.3	30.7	21.9	32.3	20,24	19.6	5	75	75			21.3
August ...		54.56	29.5	31.4		27.7	32.3	23.1	34.0	31	21.5	29	72	73			22.2
September		56.58	28.0	30.0		26.0	30.9	21.2	32.7	11	18.6	16	61	61			17.1
October ...		60.17	25.6	27.8		23.5	29.1	17.9	34.2	31	14.1	26	63	66			15.3
November		61.05	23.2	27.5		22.8	29.2	16.5	36.0	15	10.6	23	64	60			13.4
December		61.12	15.7	19.5		15.6	20.7	10.5	26.2	19	3.4	27	64	(55)			8.6
YEAR ...		758.38	22.1	24.7		20.7	25.8	15.6	—	—	—	—	64	62			13.4

MMARY OF METEOROLOGICAL OBSERVATIONS AT ACRE FOR THE YEAR 1933

eenwich. H = 18.7 metres.

Relative Humidity (%)				Vapour Pressure (mm.)					Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Numbe	
8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean		8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm. of rain	Mean of day Scale 0—12	N	NE
69	53	62	66	7.0	7.4	6.4	6.9		3.0	2.9	1.9	2.6	74.6	14.0	5	10	10	2.3	5	3
70	51	63	66	8.3	8.2	7.6	8.0		2.8	1.8	1.8	2.1	19.3	12.8	4	5	5	2.3	7.5	1
60	54	59	60	7.9	8.8	7.6	8.1		4.0	3.4	3.0	3.5	36.6	16.0	11	5	5	2.7	5	0
61	56	69	65	9.0	9.5	9.0	9.2		3.3	2.8	3.1	3.1	26.5	18.0	26	3	3	2.2	7	3.
55	49	71	63	11.1	11.3	11.9	11.4		3.0	2.2	2.9	2.7	2.5	2.5	29	1	1	2.1	16	1
52	54	72	62	12.8	14.3	14.3	13.8		2.4	2.1	2.5	2.3	0.0	0.0	—	0	0	2.0	5	0
63	59	74	68	16.2	16.6	16.7	16.5		3.8	2.6	4.6	3.7	0.0	0.0	—	0	0	1.7	1.5	0
65	61	73	69	17.7	18.5	17.7	18.0		3.8	2.8	4.1	3.6	0.0	0.0	—	0	0	2.0	3.5	0
59	58	(67	63)	15.1	16.2	(14.7	15.3)		2.4	2.2	3.5	2.7	11.0	6.0	29	2	2	1.7	12	4
58	53	70	64	12.9	13.1	13.4	13.1		2.2	1.6	1.8	1.9	24.0	21.0	23	2	2	1.9	21	4.
39	41	55	47	7.8	10.2	9.2	9.1		3.0	2.6	2.3	2.6	7.0	7.0	29	1	1	2.2	11	3.
54	53	59	56	6.7	8.7	7.1	7.5		5.1	4.4	4.8	4.8	36.5	28.0	23	5	5	2.9	8	6.
59	54	66	62	11.0	11.9	11.3	11.4		3.2	2.6	3.0	3.0	238.0	—	—	34	34	2.2	102.5	27

IMARY OF METEOROLOGICAL OBSERVATIONS AT HAIFA FOR THE YEAR 1933

Greenwich. H = 15.8 metres h_t = 1.5 metres h_r = 1.3 metres C_h = + 1.4 mm.=

Relative Humidity (%)				Vapour Pressure (mm.)					Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Numbe	
8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean		8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm. of rain	8 h. Scale 0—12	N	NE
67	57			7.5	8.1				3.5	3.6			86.5	13.4	4	13	13	1.6	5	1
66	(59)			8.4	(9.4)				3.8	2.7			24.6	15.7	4	6	4	2.0	6	4
55	57			8.0	9.4				4.8	4.4			35.3	15.8	11	5	4	1.8	1.5	3
56	56			9.1	10.6				3.3	3.1			24.0	10.5	26	6	4	1.4	6	2
61	59			13.0	14.8				2.1	1.8			0.0	0.0	—	0	0	1.0	0.5	7
63	68			16.3	19.6				0.4	0.3			0.0	0.0	—	0	0	1.5	1	1.
75	75			21.3	23.5				1.4	0.8			0.0	0.0	—	0	0	1.3	.0.5	1
72	73			22.2	24.9				1.2	0.6			0.0	0.0	—	0	0	1.0	2	2.
61	61			17.1	19.3				1.8	2.0			4.3	3.1	29	2	2	1.5	4.5	7.
3	66			15.3	18.1				1.5	1.7			9.8	7.1	23	2	2	1.3	7.5	1
4	60			13.4	16.3				2.7	1.7			9.6	5.3	29	3	3	1.7	1	1.
[illegible]	(55)			8.6	(9.3)				3.7	4.2			67.3	47.8	23	6	6	1.9	2.5	1.
[illegible]	62			13.4	15.3				2.5	2.2			261.4	—	—	43	38	1.5	38	33.

T ACRE FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

unt (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation mm. per day
							Force	Direction									
20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	Mean of day	Number of Observations in which the Wind-Direction was recorded as									
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
1.9	2.6	74.6	14.0	5	10	10	2.3	5	3	6	24	16	17.5	6	10.5	5	5.24
1.8	2.1	19.3	12.8	4	5	5	2.3	7.5	1	3	26.5	9	15	5	15	2	4.92
3.0	3.5	36.6	16.0	11	5	5	2.7	5	0	2.5	16.5	5	22	13	24	5	5.38
3.1	3.1	26.5	18.0	26	3	3	2.2	7	3.5	0	4.5	8	25	22.5	13.5	6	5.13
2.9	2.7	2.5	2.5	29	1	1	2.1	16	1	1.5	3.5	9	24.5	20	14.5	3	5.95
2.5	2.3	0.0	0.0	—	0	0	2.0	5	0	1.5	6.5	12.5	28	20	6.5	7	5.85
4.6	3.7	0.0	0.0	—	0	0	1.7	1.5	0	0	0	5.5	35	35.5	2.5	13	5.46
4.1	3.6	0.0	0.0	—	0	0	2.0	3.5	0	0	0	4.5	29	41.5	11.5	3	5.43
3.5	2.7	11.0	6.0	29	2	2	1.7	12	4	0.5	0.5	4	18.5	25.5	16	9	5.92
1.8	1.9	24.0	21.0	23	2	2	1.9	21	4.5	1.5	5	10	12	17.5	5.5	16	6.39
2.3	2.6	7.0	7.0	29	1	1	2.2	11	3.5	4	18.5	16	11	10	13	3	8.65
4.8	4.8	36.5	28.0	23	5	5	2.9	8	6.5	11	25.5	23	8	7.5	3.5	0	8.14
3.0	3.0	238.0	—	—	34	34	2.2	102.5	27	31.5	131	122.5	245.5	224	136	72	6.04

HAIFA FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

1.5 metres $h_r = 1.3$ metres $C_h = + 1.4$ mm.=

unt (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation mm. per day
							Force	Direction									
20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.	Number of Observations in which the Wind-Direction was recorded as									
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
		86.5	13.4	4	13	13	1.6	5	1	2	17	8	17.5	1.5	5	5	3.60
		24.6	15.7	4	6	4	2.0	6	4	2.5	15	8.5	7	2.5	10.5	0	3.87
		35.3	15.8	11	5	4	1.8	1.5	3	3	12.5	7	14.5	2	14.5	4	4.71
		24.0	10.5	26	6	4	1.4	6	2	3.5	6.5	3.5	13.5	4.5	15.5	5	5.67
		0.0	0.0	—	0	0	1.0	0.5	7	2.5	3	2	7.5	11	23.5	5	6.27
		0.0	0.0	—	0	0	1.5	1	1.5	2.5	3	0.5	13.5	18	15	5	7.72
		0.0	0.0	—	0	0	1.3	0.5	1	0.5	2	3	14.5	20.5	16	4	6.73
		0.0	0.0	—	0	0	1.0	2	2.5	2	2	4.5	11	16.5	15.5	6	6.67
		4.3	3.1	29	2	2	1.5	4.5	7.5	7	0.5	1.5	12	14	13	0	5.74
		9.8	7.1	23	2	2	1.3	7.5	1	4	5	6.5	11	10	16	1	5.10
		9.6	5.3	29	3	3	1.7	1	1.5	3	7	13	17	10	7.5	0	5.50
		67.3	47.8	23	6	6	1.9	2.5	1.5	0	17	19	13	7	2	0	4.38
		261.4	—	—	43	38	1.5	38	33.5	32.5	90.5	77	152	117.5	154	35	5.50

SUMMARY OF METEOROL

27113—1000—G.C.P.

φ = 32° 30′ N. λ = 35° 30′ East of Greenwich. H = -

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				V
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h
1933																	
January ...			10.9	18.6		13.6	20.0	7.1	25.0	20,22	1.5	8	69	54			6.
February			13.5	21.4		15.6	22.5	8.7	30.5	18	2.8	4	73	51			8.
March ...			15.7	23.0		16.3	24.2	8.4	31.3	10	2.0	16	59	39			7.
April			18.3	25.1		18.0	26.2	9.7	39.2	23	4.6	15	59	35			9.
May			24.7	31.5		24.2	32.6	15.8	39.0	15	12.0	9,19	47	28			10.
June			27.6	35.0		27.0	36.1	17.8	45.0	9	12.5	1	44	23			12.
July			28.8	34.8		28.2	36.0	20.3	39.0	7	17.5	5,6	57	35			16.
August ...			28.9	35.1		28.8	36.5	21.1	39.8	13	17.9	29	61	40			18.
September			27.3	33.1		26.6	34.7	18.6	38.5	22,23	15.5	30	61	40			16.
October ...			24.6	31.2		24.0	32.8	15.2	39.0	30,31	10.4	26	55	36			12.
November			20.7	30.4		22.0	31.7	12.3	37.5	1	5.9	23	51	36			9.
December			12.9	20.2		15.1	21.7	8.5	26.0	14	0.6	27	66	48			7.
YEAR ...			21.2	28.3		21.6	29.6	13.6	—	—	—	—	58	39			11.

SUMMARY OF METEOROL

27113—1000—G.C.P.

φ = 32° 27′ N. λ = 35° 18′ East of Greenwich. H = 160

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Va
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.
1933																	
January ...			9.2	14.4	8.3	9.5	15.7	6.0	19.2	23	2.1	8					
February			12.4	18.7	11.1	12.8	19.9	8.8	25.2	28	5.0	10					
March ...			13.6	19.4	11.4	13.3	20.7	8.7	27.8	28	3.5	6					
April			16.3	22.3	12.6	15.3	23.7	10.0	34.4	24	6.2	18					
May			22.4	30.5	19.0	21.9	31.9	15.6	36.4	2	12.8	6					
June			25.6	33.4	22.7	25.0	34.7	18.4	43.1	9	14.2	3					
July			25.6	(31.7)	22.8	(25.0)	(33.4)	19.7	(35.1	31)	17.9	10					
August ...			26.8	33.9	25.1	26.6	35.0	20.8	38.2	31	18.5	28					
September			25.1	32.6	24.2	25.3	33.9	19.2	36.1	7	16.6	18					
October ...			21.4	30.0	19.7	21.9	31.3	16.4	34.5	31	12.0	27					
November			18.8	30.4	17.4	20.2	31.7	14.4	35.6	4,16	7.6	24					
December			11.9	(19.6)	10.7	(12.7	20.9)	8.5	(26.9	21)	1.7	28					
YEAR ...			19.1	26.4	17.1	19.1	27.7	13.9	—	—	—	—					

RY OF METEOROLOGICAL OBSERVATIONS AT BEISAN FOR THE YEAR 1933

eenwich.   H = — 118 metres

ative Humidity (⁰/₀)			Vapour Pressure (mm.)				Cloud Amount (0–10)				Rainfall (mm.)			Days with		Force	Number of	
14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.		
												Amount	Date	of rain		Scale 0—12	N	NE
54			6.6	8.6			2.7	2.3			46.6	13.6	5	12	10	1.2	0.5	11.5
51			8.4	9.7			3.3	2.0			31.9	12.0	7	5	5	1.1	0	8
39			7.8	8.1			2.5	1.5			11.1	3.0	11,21	5	4	1.3	1.5	7.5
35			9.1	8.3			1.9	1.8			11.6	8.5	3	3	2	1.4	0	7
28			10.6	9.7			0.9	0.3			Drops	Drops	7,29,30	0	0	1.3	0	5
23			12.4	9.5			0.4	0.3			0.0	0.0	—	0	0	1.0	0	3.5
35			16.8	14.2			0.8	0.0			0.0	0.0	—	0	0	0.7	0	1
40			18.0	16.3			1.3	0.0			0.0	0.0	—	0	0	0.6	0	2.5
40			16.4	15.0			1.2	0.6			Drops	Drops	27,29	0	0	0.6	0	1.5
36			12.6	12.2			0.7	1.3			0.5	0.5	23	1	0	0.6	0	6
36			9.2	11.5			1.0	1.2			1.5	1.5	29	1	1	0.5	0.5	2.5
48			7.3	8.6			3.9	3.5			37.3	19.0	3	5	5	1.1	2.5	5
39			11.3	11.0			1.7	1.2			140.5	—	—	32	27	2.4	5	61

RY OF METEOROLOGICAL OBSERVATIONS AT JENIN FOR THE YEAR 1933

ch.   H = 160 metres.

ative Humidity (⁰/₀)			Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Number of	
14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	Mean of day		
												Amount	Date	of rain		Scale 0—12	N	NE
							3.1	3.8	3.9	3.6	72.2	17.1	23	13	13	3.4	4.5	8
							2.8	3.1	2.5	2.8	52.8	18.0	12	7	7	3.0	0	6.5
							3.7	3.0	2.9	3.2	30.0	11.7	11	9	6	3.4	0	1.5
							2.7	2.0	1.8	2.2	31.7	10.3	4	6	6	3.1	5	2
							1.3	0.0	0.0	0.4	0.0	0.0	—	0	0	2.7	1	1
							0.4	0.0	0.0	0.1	0.0	0.0	—	0	0	3.3	0	0
							0.7	0.0	0.0	0.2	0.0	0.0	—	0	0	2.8	0.5	0.5
							1.4	0.1	0.0	0.5	0.0	0.0	—	0	0	3.2	0	0
							1.4	0.1	0.0	0.5	0.0	0.0	—	0	0	2.7	0	0
							1.0	0.6	0.5	0.7	16.6	16.6	23	1	1	2.5	2	0
							1.6	1.3	1.2	1.4	5.7	3.6	29	2	2	2.4	3.5	0
							4.1	4.4	3.8	4.1	52.0	22.9	24	8	8	3.1	4	6
							2.0	1.5	1.4	1.6	261.0	—	—	46	43	3.0	20.5	25.5

EISAN FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

t (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									
0 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.	Number of Observations in which the Wind-Direction was recorded as									mm. per day
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
		46.6	13.6	5	12	10	1.2	0.5	11.5	0	2	5.5	4.5	2.5	1.5	34	3.13
		31.9	12.0	7	5	5	1.1	0	8	2.5	3	2.5	1	7.5	2.5	29	3.44
		11.1	3.0	11,21	5	4	1.3	1.5	7.5	1	2.5	3.5	5.5	16	3.5	21	5.51
		11.6	8.5	3	3	2	1.4	0	7	0.5	3.5	4	2.5	16	8.5	18	6.24
		Drops	Drops	7,29,30	0	0	1.3	0	5	0	3	1	1.5	26.5	8	17	9.53
		0.0	0.0	—	0	0	1.0	0	3.5	2.5	0.5	3.5	1	25.5	4.5	19	10.92
		0.0	0.0	—	0	0	0.7	0	1	3.5	1	1.5	2.5	28	6.5	18	9.88
		0.0	0.0	—	0	0	0.6	0	2.5	3.5	2.5	0.5	0.5	32	5.5	15	9.05
		Drops	Drops	27,29	0	0	0.6	0	1.5	1.5	1	1	1	22.5	12.5	19	8.09
		0.5	0.5	23	1	0	0.6	0	6	2.5	4.5	1	2	10.5	5.5	30	6.72
		1.5	1.5	29	1	1	0.5	0.5	2.5	3	1	0.5	0	6.5	4	42	6.01
		37.3	19.0	3	5	5	1.1	2.5	5	1.5	5	3	4	2.5	1.5	37	3.82
		140.5	—	—	32	27	2.4	5	61	22	29.5	27.5	26	196	64	299	6.86

ENIN FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

t (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									
0 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	Mean of day	Number of Observations in which the Wind-Direction was recorded as									mm. per day
			Amount	Date	of rain		Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
3.9	3.6	72.2	17.1	23	13	13	3.4	4.5	8	14	10.5	9	25	19	3	0	3.62
2.5	2.8	52.8	18.0	12	7	7	3.0	0	6.5	0.5	5	2.5	26	30	4.5	0	3.02
2.9	3.2	30.0	11.7	11	9	6	3.4	0	1.5	4	2.5	1	38	41.5	4.5	0	4.94
1.8	2.2	31.7	10.3	4	6	6	3.1	5	2	0	0	0	35	40	8	0	6.23
0.0	0.4	0.0	0.0	—	0	0	2.7	1	1	1	1	2.5	37	42	7.5	0	9.45
0.0	0.1	0.0	0.0	—	0	0	3.3	0	0	1	1.5	12.5	41.5	31.5	2	0	10.73
0.0	0.2	0.0	0.0	—	0	0	2.8	0.5	0.5	0	0	0.5	39	45.5	7	0	9.79
0.0	0.5	0.0	0.0	—	0	0	3.2	0	0	0	0	1.5	43.5	45	3	0	8.69
0.0	0.5	0.0	0.0	—	0	0	2.7	0	0	0	0	0	45	45	0	0	8.00
0.5	0.7	16.6	16.6	23	1	1	2.5	2	0	0	0	0	27	44.5	19.5	0	6.75
1.2	1.4	5.7	3.6	29	2	2	2.4	3.5	0	9.5	12	6	19	26	14	0	8.07
3.8	4.1	52.0	22.9	24	8	8	3.1	4	6	12	9.5	17	26.5	13.5	4.5	0	4.33
1.4	1.6	261.0	—	—	46	43	3.0	20.5	25.5	51	42	52.5	402.5	423.5	77.5	0	6.97

SUMMARY OF METEORO

27113—1000—G.C.P.

φ = 31° 30′ N. λ = 34° 27′ East of Greenwich. H

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				V
	(m.b.)	Standard (mm.) 8 h.	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h
1933																	
January ...		761.10	10.6			12.8	18.0	7.6	26.1	23	3.9	11	81				7.
February		58.34	13.3			14.4	19.7	9.1	28.4	18	5.4	10	78				8.
March ...		58.38	15.5			15.2	20.9	9.5	32.8	1	4.9	5,27	68				9.
April		58.39	16.8			16.2	21.7	10.8	31.8	24	7.2	17	70				10.
May		56.26	22.3			20.8	27.5	14.0	38.3	15	10.6	5,7	63				12.
June		54.02	26.0			24.0	30.9	17.2	44.2	9	13.0	7	57				14.
July		52.78	25.7			24.3	29.5	19.1	33.4	16	16.4	3,16	73				17.
August ...		52.98	26.1			25.0	30.2	19.8	34.4	12	17.6	29	77				19.
September		55.28	24.6			23.4	28.8	17.9	32.8	1	15.8	20	74				17.
October ...		58.95	21.5			20.7	26.6	14.8	29.6	30	10.6	27	71				13.
November		59.91	18.5			19.6	26.0	13.2	30.3	15	7.7	24	63				10.
December		60.30	13.8			15.6	21.6	9.7	28.4	20	2.3	28	72				8.
YEAR ...		757.22	19.6			19.3	25.1	13.6	—	—	—	—	71				12.

SUMMARY OF METEOROLOG

27113—1000—G.C.P.

φ = 31° 14′ N. λ = 34° 48′ East of Greenwich. H = 286

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Va
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.
1933																	
January ...			10.1			11.2	16.9	5.6	25.2	23	0.3	8	78				7.
February			11.2			13.0	19.1	7.0	26.1	18,22	3.5	9	79				7.
March ...			13.5			14.8	22.1	7.4	30.9	1	2.5	6,16	68				7.
April			16.4			—	(24.0)	—	(35.9	30)	—	--	60				8.
May			22.7			—	—	—	—	—	—	—	47				9.
June			(26.4)			(25.4	35.5)	15.2	(46.0	13)	9.9	18	(46				11.
July			25.5			24.5	33.5	15.5	37.9	1	12.0	3,14	59				14.
August ...			25.3			24.8	32.7	17.0	35.5	13	12.5	29	67				16.
September			22.7			22.5	31.4	13.6	34.2	30	10.0	17,23,24	67				13.
October ...			21.2			20.4	28.4	12.5	35.2	31	7.0	27	65				12.
November			19.3			21.2	30.7	11.7	35.6	15	5.0	24	56				9.
December			12.0			(15.0	22.4)	7.7	(27.8	20)	1.5	27,30	74				7.
YEAR ...			18.9			—	—	—	—	—	—	—	64				10.

ARY OF METEOROLOGICAL OBSERVATIONS AT GAZA FOR THE YEAR 1933

reenwich. H = 35.1 metres h_t = 1.5 metres h_r = 1.0 metres C_h = + 3.2 mm.

lative Humidity (%)			Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Number of	
14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.		
												Amount	Date	of rain		Scale 0—12	N	NE
			7.7				4.5				70.8	14.2	4	14	12	0.3	0	0
			8.9				3.3				52.7	14.1	7	8	7	0.4	1	0
			9.0				3.8				15.7	9.4	11	5	5	0.5	0	2
			10.0				2.3				30.2	8.2	1	7	7	0.5	0	0
			12.4				1.9				0.0	0.0	—	0	0	0.4	2.5	0
			14.2				1.2				0.0	0.0	--	0	0	0.5	0.5	1
			17.7				2.5				0.0	0.0	—	0	0	0.4	0	0
			19.3				3.1				0.0	0.0	—	0	0	0.3	1	0.5
			17.0				2.9				Drops	Drops	12	0	0	0.5	0	0
			13.5				2.1				0.0	0.0	—	0	0	0.3	1	1
			10.1				3.5				39.1	29.2	29	4	4	0.2	0	0
			8.5				3.5				84.4	51.1	24	4	4	0.3	0	0
			12.4				2.9				292.9	–	—	42	39	0.4	6	4.5

OF METEOROLOGICAL OBSERVATIONS AT BEERSHEBA FOR THE YEAR 1933

ich. H = 286 metres.

lative Humidity (%)			Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Force	Number of	
14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day		≥ 0·1 mm.	≥ 1·0 mm.	8 h.		
												Amount	Date	of rain		Scale 0—12	N	NE
			7.1				5.6				47.8	13.7	26	7	7	(3.3)	0	0
			7.8				4.2				53.7	14.5	4	5	5	3.2	0	0
			7.8				4.2				39.4	15.5	11	5	5	2.8	0	0
			8.3				1.8				8.7	3.8	7	3	3	2.7	0	0
			9.6				2.2				0.0	0.0	—	0	0	(1.1)	0	0
			11.6)				0.7				0.0	0.0	—	0	0	1.3	0	0
			14.2				2.4				0.0	0.0	—	0	0	1.8	0	0
			16.0				3.3				0.0	0.0	—	0	0	1.8	0	0
			13.8				2.4				0.0	0.0	—	0	0	0.9	0	0
			12.2				1.4				0.0	0.0	—	0	0	1.4	0	0
			9.4				2.2				30.0	30.0	28	1	1	2.9	0	0
			7.7				4.5				29.0	21.0	23	2	2	2.9	0	0
			10.5				2.9				208.6	—	—	23	23	2.2	0	0

T GAZA FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

1.5 metres h$_r$ = 1.0 metres C$_h$ = + 3.2 mm.

ount (0–10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									mm. per day
							8 h.	Number of Observations in which the Wind-Direction was recorded as									
20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≥ 0·1 mm. of rain	≥ 1·0 mm. of rain	Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
		70.8	14.2	4	14	12	0.3	0	0	0	3.5	1.5	1	2	0	23	4.23
		52.7	14.1	7	8	7	0.4	1	0	0	3.5	1.5	0.5	1.5	1	19	4.66
		15.7	9.4	11	5	5	0.5	0	2	1	1	1	2	4.5	1.5	18	5.90
		30.2	8.2	1	7	7	0.5	0	0	0	0.5	3.5	4	4	1	17	6.47
		0.0	0.0	—	0	0	0.4	2.5	0	0	1	1	1	3.5	2	20	6.59
		0.0	0.0	—	0	0	0.5	0.5	1	0	1	1	3.5	3	1	19	8.03
		0.0	0.0	—	0	0	0.4	0	0	0.5	1.5	3	2	2	2	20	7.72
		0.0	0.0	—	0	0	0.3	1	0.5	0	0	1.5	1.5	3	1.5	22	7.06
		Drops	Drops	12	0	0	0.5	0	0	0	4	4.5	1.5	3	0	17	6.68
		0.0	0.0	—	0	0	0.3	1	1	0	1.5	2.5	2	0	0	23	6.51
		39.1	29.2	29	4	4	0.2	0	0	1.5	1	2	2.5	0	0	23	6.07
		84.4	51.1	24	4	4	0.3	0	0	1.5	3.5	3	1	1	0	21	5.05
		292.9	–	—	42	39	0.4	6	4.5	4.5	22	26	22.5	27.5	10	242	6.25

EERSHEBA FOR THE YEAR 1933

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

ount (0—10)		Rainfall (mm.)			Days with		Wind										Evaporation
							Force	Direction									mm. per day
							8 h.	Number of Observations in which the Wind-Direction was recorded as									
20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≥ 0·1 mm. of rain	≥ 1·0 mm. of rain	Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
		47.8	13.7	26	7	7	(3.3)	0	0	10.5	14.5	2	0	0	0	3	3.93
		53.7	14.5	4	5	5	3.2	0	0	3	6.5	3.5	1	11	0	3	(3.67)
		39.4	15.5	11	5	5	2.8	0	0	5	8.5	0.5	0	5	0	9	6.40
		8.7	3.8	7	3	3	2.7	0	0	1.5	7	3.5	1	9	0	8	7.06
		0.0	0.0	—	0	0	(1.1)	0	0	1	9.5	3.5	0	4	0	13	10.44
		0.0	0.0	—	0	0	1.3	0	0	0	6	0	0	14	0	10	13.12
		0.0	0.0	—	0	0	1.8	0	0	2	1	1	0	17	0	10	10.51
		0.0	0.0	—	0	0	1.8	0	0	0	0	0	0	26	0	11	8.54
		0.0	0.0	—	0	0	0.9	0	0	0	1	0	0	10	0	19	7.62
		0.0	0.0	—	0	0	1.4	0	0	6	1	2	1	11	0	10	7.15
		30.0	30.0	28	1	1	2.9	0	0	5.5	11	1.5	1	7	0	4	9.10
		29.0	21.0	23	2	2	2.9	0	0	4.5	8.5	5	1	5	0	5	5.47
		208.6	—	—	23	23	2.2	0	0	39	74.5	22.5	5	113	0	105	7.75